

The United States MILLER

AND THE MILLING ENGINEER.

Fifteenth Year.—No. 8.

MILWAUKEE, AUGUST, 1890.

Subscription Price, \$1.00 Per Year.

“ENTER OUR ORDER”

RICHMOND

Grain Cleaning Machinery

AND

BRAN DUSTERS.

Extract from a Letter Recently Received.

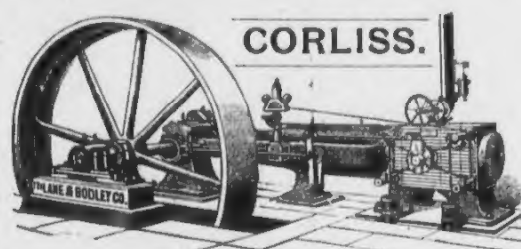
ENTER our order for earliest possible shipment, two more No. 7 Empire Horizontal Dusters. Now we have delayed ordering these Machines, until we could test the first one, and we are at very large loss daily by reason of not having the machines in.

We think it only fair to you, to say that at the time of ordering the first machine, we also ordered one from the..... The two machines have been in operation now side by side, and your machine so far eclipses theirs in workmanship and operation, that you have secured our order.

RICHMOND MANUFACTURING CO.

LOCKPORT, N. Y., U. S. A.

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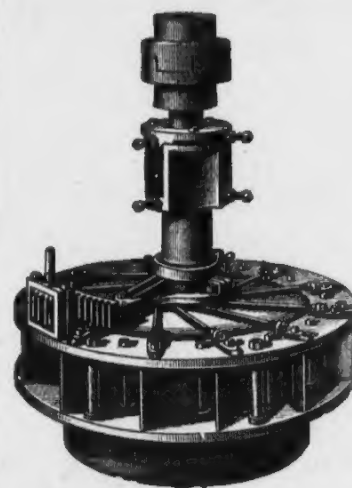
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ENGINES

From Heavy Patterns and of Unexcelled Workmanship.

Steel Boilers. Feed Water Heaters
Shafting, Pulleys and Gearing.

THE LANE & BODLEY CO., cor. John & Water Sts., CINCINNATI, O.



Leffel Water Wheel

Made by JAMES LEFFEL & CO.

The “OLD RELIABLE” with Important Improvements, making it the

Most Perfect Turbine now in Use.

Comprising the LARGEST and the SMALLEST Wheels, under both the HIGHEST and LOWEST Head in this country. Our New Illustrated Book sent free to those owning water power.

Write us for NEW PRICES before buying elsewhere. New shops and New Machinery are provided for making this Wheel. Address,

JAMES LEFFEL & CO.,

Springfield, Ohio, or 110 Liberty St., New York.

* T H E *
**“WESTERN”
MILL SHELLER.**

The most Compact, Durable, Best Sheller and Best Cleaner.

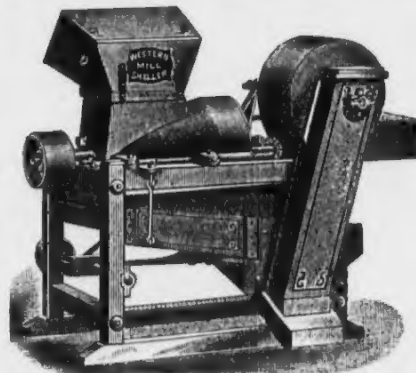
Takes up but little room, runs at low rate of speed, requires no attention. It is in every respect the

Best Sheller ever offered to the Public.

Please mention this paper. Write for full particulars to

UNION IRON WORKS, - DECATUR, ILL.

Mfrs. of “Western” Shellers, Cleaners, Separators, and all kinds of Elevator Machinery.



CAWKER'S

American Flour Mill & Grain Elevator Directory

FOR 1890-1891

It contains: 1. A list of Flour Mills in each State, Territory and Province, with names of owners, P. O. and county; in thousands of instances giving their capacity in barrels per day, kind of power used, etc., also indicating such firms as are supposed to be worth \$10,000 and upwards. Total number of mills given, 17,145.

2. A list of miscellaneous mills, such as Corn, Oatmeal, etc.
3. A list of Millwrights.
4. A list of Grain Elevator Owners and Grain Dealers.

5. A list of well-rated Flour Brokers, Merchants and BAKERS in all parts of the United States and Canada, which has been compiled with extraordinary care, capital and credit being considered in the compilation.

6. A list of Foreign flour and grain importers, secured by our own special correspondents and believed to be thoroughly reliable. In short, it is a complete KEY for reaching the Flour and Grain Trade, enabling ANY department of the trade to reach ANY other desired.

The price is invariably Ten Dollars per copy, on receipt of which it will be sent, post paid, to any part of the world. The complete work only is sold. We do not supply lists for single states. These Directories have been issued every two years since 1878, and have been declared indispensable by the prominent mill-furnishers, flour brokers, millers, etc., of this country and Europe. Address,

E. HARRISON CAWKER, No. 124 Grand Avenue, - MILWAUKEE, WIS.

"RUNS LIKE A CLOCK"

WATERTOWN, Wis., July 23d, 1890.

THE EDWARD P. ALLIS COMPANY,

MILWAUKEE, Wis.:

GENTLEMEN—It gives us pleasure to say that our Globe Mill, rebuilt by you and completed and running since June 1st, is giving us splendid satisfaction in every respect. The machinery is well located, and runs like a clock, smooth and easy. The quantity of wheat per bbl. of flour has been considerably lowered, the quality of flour greatly improved, and the mill is doing everything you guaranteed. We hereby acknowledge our acceptance, and shall be pleased at any time to have you refer other parties to us for further particulars regarding the mill in general or any of the machinery.

We remain, yours truly,

THE GLOBE MILLING CO.,

Capacity, 450 Barrels.

G. MAY, Secretary.



The above mentioned mill is fully equipped with **Gray's Noiseless Belt Roller Mills**, **Gray's Improved Centrifugal Reels**, **Gray's Patent Flour Dressers**, **Reliance Sieve Scalpers** and **Reliance Purifiers**, arranged upon our latest improved system, with the **BEALL CORRUGATION** on break rolls. The results speak for themselves.

If in want of anything in our line, write for prices.

THE EDW. P. ALLIS COMPANY

* Mill Builders and Mill Furnishers, *

RELiance WORKS,

MILWAUKEE, WIS.



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[Written for the UNITED STATES MILLER AND MILLING ENGINEER.]

MILLING THOUGHTS.

By J. F. MUELLER.

HERE is no economy in running a machine constantly for all it is worth, without proper care in cleaning, adjusting and oiling. It is not the greatest amount of work which can be got out of a machine in a given time that always constitutes good economy, but the greatest amount of work with the least wear and tear. Over-speeding is one of the faults, but because over-speeding beyond a certain limit to the manifest injury of the machine is not considered good practice, it does not follow that there is good economy in reducing the feed below a speed which will render the machine incapable of turning out a reasonably good day's work. There is no economy in pushing a machine beyond its powers of endurance without proper care in adjusting, oiling and cleaning, than there would be in constantly urging a horse forward with loads far beyond his strength, without necessary food and care. In either case the result will be the same.

It is a fact that more machinery is destroyed through ignorance and carelessness than by use. Men that are very careful, and even miserly in their money matters are often the ones who lose most by bad management and carelessness in regard to the use of their machinery. Indeed, in many cases, the premature breaking down of well made machinery is directly traceable to the miserly instincts of the owner, and his unwillingness to employ and pay a competent person to care for and operate it. Of all "penny wise and pound foolish" policies this kind is the least excusable. It often brings undeserved blame and discredit upon the honest manufacturer, which is not compensated by the additional profit he may derive from replacing the worn-out machines with new ones.

Don't be averse to examining into the merits of any invention designed to improve the working of your machinery, when requested, but be governed by no man's opinion in making up your estimate of its value; use your own common sense, and don't allow yourself to be overwhelmed by the speciousness of the agent presenting it. Take time to think the matter over coolly, and having formed your opinion, stick to it firmly, avoiding all discussions of the matter.

Manufacturers estimate that twenty per cent. of the wear of machinery comes from neglect to keep the bearings properly oiled. The object of oiling it is to keep the wearing parts from grinding each other out, and good oil keeps the parts from coming in contact, as they roll or slide on the slippery surface. The best oil that will not "gum" is the only oil that should be used, as it is the only oil that accomplishes the purpose for which it is intended. Good oil spreads quickly, and friction is reduced to the least possible amount. If too much oil is used it is wasted; if too little, the metal surfaces come in contact, heat results, the metal expands, and the bearing surfaces are cut out by wear. In milling machin-

ery especially it requires a good deal of study to know just when to oil and what bearings need most frequent attention—but the time given to master the subject is well expended, and will save much cost in "extras."

Without doubt the most economical way of lubricating shafting is by means of a box which has a reservoir attached to the under side of it, and by a wick feed the oil is carried up to the shaft, and from thence falls back into the reservoir again, for a pint of oil, costing twenty-five cents per gallon, will last at least six months on an ordinary line or main shafting, and in some cases much longer; but if the shaft is fitted with a box that has a large slot in the cap, and no reservoir underneath, it is often a good plan to use some good grease, of a proper consistency, that it may not feed too fast or too slow. A mill can be run with less cost for power where oil is used in properly constructed boxes than with any kind of prepared grease, and tallow is much worse in this respect in cold weather.

There is one feature in operating a mill that every man engaged in the profession should constantly study, and that is to determine, if possible, what he would do providing certain mishaps should occur. When a new mill is put in operation, the question of its breaking down is not thought of by the builders of the machinery, that being left to the man that has it in charge, who must operate it. The builders contemplate the question of its economical performance, even going deep into the innermost details, sparing neither time, pains nor expense to make a success of the plant certain. No matter how perfect the plant seems, the slightest mismanagement of the operator will often cause best calculations of the designer to be made valueless. The operating engineer must not only consider the efficiency of the plant under his charge, but he must study well the methods necessary to maintain this efficiency, realizing that the economy of a plant depends sometimes upon the cheapness of its repair bills, which does not always mean the absolute outlay for the repairs proper, but includes the cost accruing from loss during the period that the plant is shut down. The operating miller must therefore, if he would be a success, thoroughly familiarize himself with such data as may be within his reach, and he must constantly consider the possibilities as they may arise, and learn to know just what to do, and when to do it, that he may lessen the time lost through the breaking down of his machinery.

SPONTANEOUS COMBUSTION.

CONSIDERABLE attention has been given of late years to the subject of spontaneous combustion, and Prof. Hartmann, of Stuttgart, Germany, in a recent address gave numerous illustrations of the dangers to factories, mills, warehouses, barns, residences, etc., from this cause. Of course in the present state of chemical knowledge it is hard to tell in all cases just what produces this spontaneity in burning. In stacks of hay and fodder, for instance, in many cases it has been dis-

covered by the unsuspecting farmer that what appeared on the outside to be choice fodder proved upon examination, within the stack, to be absolutely worthless, having smouldered and burned until, on exposure to the air, there was nothing but ashes and something resembling charcoal.

At a certain paper factory, it so happened that a portion of cotton-waste used for cleaning a machine fell into a little channel, at the side of which the machine worked, without being noticed. This had been going on for some considerable time, when a fire broke out in the machine in question. After the fire, which happily was noticed at once, had been subdued, a very careful investigation as to the cause of the fire was made with the surprising result that the cotton-waste used for the cleaning of the machine proved to be the cause. In the course of time a self-ignition of the cotton-waste took place, and had this occurred on a day of rest instead of one of the working days, a terrible conflagration would have been the result. It may be taken for granted that the cause of more than one factory-fire can be assigned to the wool or rags that have been used in cleaning machinery. These rags and cotton waste, which in cleaning machinery become fatty and saturated with oil, also collect very minute iron particles, which gives them a very inflammable nature and they easily become self-ignited, as experiments especially made in this cause have proved. One should be particularly careful not to throw these dangerous oily cleaning materials in a heap, and especially in the vicinity of other inflammable goods or articles. Wooden cup-boards or boxes for the keeping of these rags should be avoided, and only iron or stone vessels with well fitting lids should be used.

Another case is mentioned where black silk gauze and twist had been shipped from Lyons, France, to Warsaw, Russia, and stored in a building absolutely fire-proof, took fire of itself, originating in the very center of the silk. The consignee stated that cases of the same kind had before occurred, and others had been noticed, so that now the German railroad authorities have excluded from their lines all silk coming from Belgium or France, known as charged silk.

A number of articles and materials which have strong tendencies to spontaneous combustion, such as coal, peat, wood pulp, saw dust, raw cotton and many oils and greasy substances, but Prof. Hartmann thinks that one of the most common causes, and one which goes to explain the origin of many mysterious fires, is steam and hot air pipes, and cites a number of instances in which thorough investigation has shown this to be the case.

ON THE IMPROVEMENT OF FLOUR.

BY M. C. P. KOWAL-KOWSKY,
Professor at the University of Warsaw, Russia.

It is known that corn merchants, to get rid of spoiled flour, often mix it with good, which procedure they call "improving the flour." This same custom is in vogue in public institutions which have their own supply of provisions when a part of the flour is deteriorated. It is easy to understand that bread

made of this mixed flour is much inferior to that made with good flour. But it is more difficult to answer the question of knowing to what point this improvement of flour is manifested in the chemical composition of bread.

I have had occasion to make an analysis of five kinds of flour, to wit:

1. Bread made entirely of mouldy flour.
2. Bread made with half mouldy flour.
3. Bread made with one-third of bad flour.
4. Bread made with one-quarter of spoiled flour.
5. Bread made with an addition of one-fifth of bad flour.

All these five kinds of bread were of very bad appearance, a thick crust and inside a glutinous paste sticking to the knife and fingers.

A chemical analysis gave the following results:

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
All the Azote.....	1.314	1.375	1.744	1.383	1.503
Azote of albumen..	0.512	0.550	0.989	0.533	1.055
Water.....	50.64	49.66	49.22	49.65	49.00
Albumen.....	3.28	3.52	6.33	5.46	6.75
Starch.....	40.69	41.89	40.14	40.29	40.53
Mineral substances	2.88	2.62	2.78	2.16	2.38
Other substances, (fats, celluloses)...	2.51	2.38	1.83	2.23	1.44

In considering this table we see that in all these specimens of bread the relative quantities of albumen are diminished. The proportion of the azote is almost the same in every instance. If it belonged exclusively to the albumen the quantity of this last would be normal; but it is easy to calculate that in No. 1 the albumen has only 38.1 per cent. of all the azote, in No. 2, 40 per cent., in No. 3, 56 per cent., in No. 4, 61.7 per cent., and in No. 5, 70.2 per cent. Therefore we must admit that part of the azote is incorporated in the other substances, and does not belong to the albumen; we must observe that the bread analyzed contains relatively a great amount of water.

The richness of the bread in albumen is in inverse proportion with the quantity of mouldy flour contained in the dough. Thus we find that in No. 5 the quantity of the albumen is diminished 1.33 times, in No. 4 1.65 times, in No. 3 1.42 times, in No. 2 55 times, and in No. 1 2.76 times.

It results from this, that to obtain the same nutritive effect, one would have to eat very different portions of bread according to the greater or less addition of spoiled flour. Besides the diminution of the albumen in the specimens of bread analyzed, a considerable quantity of ptomaines were found, the nature of which remains hitherto without precise determination.

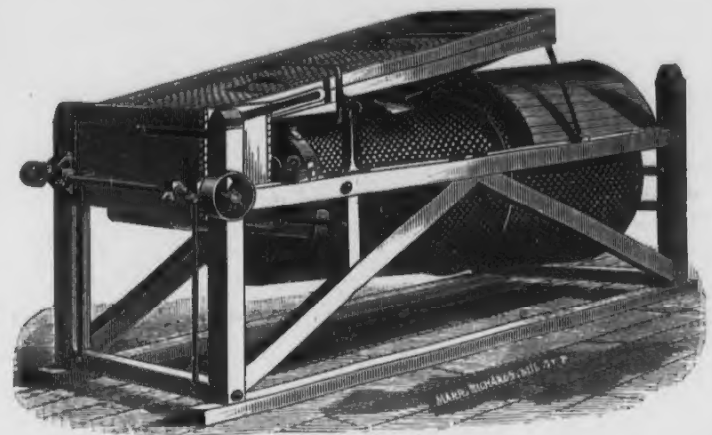
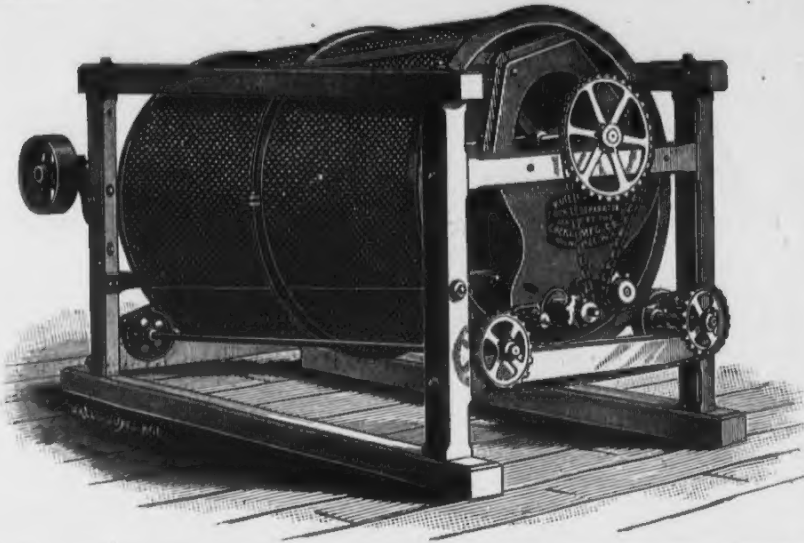
Enclosed in a dry place, as in a laboratory cupboard, this bread was covered with mould. I verified the existence of a certain kind of penicillium. Centres of similar mould were developed in the interior parts without evident communication with the exterior. In these centres I discovered the presence of the *mucor mucedo*. It is clear that the germs of this last were not destroyed during the baking of the bread.

In concluding, I believe myself entitled to say that in the instances which gave rise to my communication it would be better to speak about corrupting good flour rather than improving bad. The addition of the good flour to the bad does not give bread all the qualities of good bread; its nutritive properties remain below the normal, and the presence of ptomaines may be even dangerous to the health of consumers.

The Kurth Cockle Separator

THE PIONEER COCKLE SEPARATOR

And the machine that is running and giving satisfaction in thousands of mills in this country. Years of work prove its usefulness and durability.



We are now prepared to furnish these Separators in three styles, with either reel or sieve graders, and also with or without oat separator attachments. We are also prepared to furnish machines of small capacity, suitable for small mills, without any grader, simply the cylinder and catchboard in a simple frame, at low prices.

These machines are supplied with steel cylinders, if desired. When you buy, get the best. It is cheapest in the long run.

FOR CATALOGUES, PRICES, ETC., ADDRESS

COCKLE SEPARATOR MFG. CO.
MILWAUKEE, WISCONSIN.

THE NEW ERA SCALPER

THE PIONEER SIEVE SCALPER.

Does better work, and more of it, than any other Scalper on the market. Is working successfully in all sections of the country, on all grades of wheat, and is sent under guarantee to give satisfaction or no sale.

Write for circular giving list of millers using this machine, and go and see its work. If you do, you will see that it will be to your advantage to use it. The above circular also contains numerous testimonials, of which we give a couple of samples.



One machine, with sieve 40 inches wide, will handle one break in 500 bbl. mill; two breaks in 200 to 250 bbl. mill, or four breaks in 100 bbl. mill. Two machines can be driven with a 3-inch belt over a 5-inch pulley. Does not scour the bran, giving a clear break flour and an improvement in all grades.

SHEBOYGAN, WIS., April 26th, 1890.

SUPERLATIVE PURIFIER MFG. CO., Milwaukee, Wis.:

Gentlemen—The two New Era Scalpers purchased of you two months since have been running continuously ever since. They have done all you claimed for them, and we would not now be without them. They have made a most remarkable change in the appearance of all stocks in the mill. We heartily recommend them to the milling fraternity.

Very truly yours,

WM. ELWELL & SON.

MIDWAY, PA., August 5th, 1890.

SUPERLATIVE PURIFIER MFG. CO., Milwaukee, Wis.:

Gentlemen—The New Era Scalper bought of you has now been running for about three weeks, with perfect success. As short a time as it has been in operation, I would say that I would not be without one for three times its cost. It has improved the whole product of the mill. It's a grand improvement over the reel scalper; takes only about one-tenth of the horse power, and am satisfied the machine could be run successfully with a 1½ inch belt.

Yours truly,

D. BLACK, miller for ROBBINS & DAMFORD.

FOR CATALOGUES, CIRCULARS, ETC., ADDRESS

SUPERLATIVE PURIFIER MFG. CO.
MILWAUKEE, WISCONSIN.

ALSO MANUFACTURERS OF

The Superlative Purifier and Superlative Bran Duster.

UNITED STATES MILLER
AND THE MILLING ENGINEER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, NO. 124 GRAND AVENUE, MILWAUKEE.
SUBSCRIPTION PRICE—PER YEAR, IN ADVANCE.To American subscribers, postage prepaid..... \$1.00
To Canadian subscribers, postage prepaid..... 1.00
Foreign subscribers..... 50.

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.

Bills for advertising will be sent monthly, unless otherwise agreed upon.

For estimates for advertising, address the UNITED STATES MILLER AND THE MILLING ENGINEER.

[Entered at the Post Office at Milwaukee, Wis., as mail matter of the second-class.]

MILWAUKEE, AUGUST, 1890.

We respectfully request our readers who write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER AND THE MILLING ENGINEER. You will thereby oblige not only this paper, but the advertisers.

"THE UNIFORM BILL OF LADING."

THE several railroad lines embraced in The Central Traffic Association decided recently to effect a rather bold "coup" by putting into effect a form of "bill of lading" which should be nothing more than a special contract, whereby the railroads, for a stated consideration, should be released from all liability as common carriers and be exempt from the provisions of common law. Nothing was said to the shippers about the proposed "Uniform Bill of Lading," until all the lines had reached a perfect understanding among themselves, and obtained supplies of the new form, which were simultaneously sent out to the local freight agents, with instructions to put them in use on August 1st. Then it was that shippers became aware of the unfair document, that was about to be foisted upon them, and a conference was quickly called by the Chicago Board of Trade, to discuss the matter, and decide upon some energetic action for relief. The first meeting was held at Chicago on July 24 and 25, at which time the Associated Railway Lines were represented, together with delegates from the Boards of Trade from Milwaukee, Chicago, Peoria, St. Louis, Louisville, Cincinnati, Toledo, Detroit, New York, and other prominent shipping centers. The railroads made an effort to persuade the gentlemen representing the several trade organizations, that they were but foolish, unreasonable children, trying to resent a kind action offered for their benefit and good. This failing in its effect, a mild but firm policy of "bull-doing" was tried, and finally, the time-honored custom of the railroads, of pleasantly intimating "if you don't like it, what do you propose to do about it?" was brought to bear, which resulted in the decision on the part of the shippers to adjourn to a later date and call upon boards of trade and commercial organizations throughout the entire country to join in forming a permanent Association of Shippers. It was understood by the shippers that the representatives of the railways would be in attendance at this second meeting, which was held on Aug. 6th, but, as it seemed to those who were at the first meeting, they acted in bad faith, and failed to keep the appointment, seemingly awaiting the action of their patrons, in order to ascertain how formidable the movement would be. The second meeting was larger and more enthusiastic than the first, and resulted in the adoption of a definite plan for the permanent organization of a Shippers Association, the object of which shall be, to protect the people against all attempted impositions on the part of the railways. This is decidedly a good thing, and we sincerely hope that such an organization may be formed and maintained. It is just what the railroads do not want, and they probably realize now that they have made a serious mistake in leading their patrons to the step taken, and that they went too far in this proposed Uniform Bill of Lading. Throughout the discussion regarding the new form, the representatives of the roads endeavored to keep attention directed to the "not negotiable" feature, and when they desired to

prevent further steps towards organization, announced with blare of trumpets, that they had decided to eliminate the objectionable feature in their form and would drop the words "not negotiable" from its face. While this feature was of course objectionable, it is by no means the only, or worst point in the proposed bill, and we believe it was inserted for the purpose of attracting attention, and to be dropped as "a compromise," provided it should be found necessary for the railroads to make some concessions. If shippers do not now assert their rights, and insist upon a Bill of Lading which will compel carriers to do business under the common law, and reject the general use of a special contract upon which tariff rates shall govern, they will have cause to deeply regret it in the future. The railroads propose to have their tariffs govern on this special contract, and say they will issue a shipping receipt for transportation under common law, if demanded, but that they will charge for such lawful service a rate one class higher than the tariff rate. This will disorganize business, and compel the general use of their special contract, in order that competition may be met. The special contract evades ALL liability for the goods shipped, and if held legal as a contract, by the courts, as, in the opinion of prominent lawyers, it will be, will the paper be accepted by receivers, and money advanced, if there can be no recovery for loss or damage in transit? Numerous buyers, and some bankers assert that they would not hold such paper as security. This being so, the insertion of the words "not negotiable" makes little or no practical difference. It is to be hoped that the shippers will not permit the wool to be pulled over their eyes, in the elimination of this "not negotiable" feature.

Acting under instructions of Chairman Loring of the Executive Committee of the Millers National Association, Sec'y Barry attended both the conferences at Chicago, and took an active part in the proceedings, placing the Association on record as opposed to the proposed Uniform Bill of Lading.

THE Millers' Review of Aug. 15th contains an editorial which was evidently intended to do injury to the Millers' National Association, though why that paper should take the stand it does and print an argument based upon fallacies, we do not see.

In the first place some stress is placed upon that tattered war cry of the "Alleged M. J.'s"—that "the small miller has no show" in the National and will not receive the same benefits and protection as his larger brethren." This is always assumed, and we have yet to see any truthful or valid reason stated for the assumption. As to the objection regarding representation in the association upon the basis of capacity, this is the principal upon which all successful business organizations are founded,—and is merely a representation according to taxation. The larger millers pay for the support of the Association according to the size of their plant. The original object of the Association and its most important function to-day, is protection from patent litigation. As the large mill uses a greater quantity of patented machinery than a smaller one, it contributes proportionately more toward the protection of it. And the small miller receives the same benefits at a much less expense than if the dues were per capita instead of per capacity.

The new constitution prevents a centralization of power from a capacity vote by providing as follows:

Section 5. In transacting the business of this Association in convention, all voting shall be by viva voce, unless a vote by capacity is demanded, in which event VOTING SHALL BE BY STATES, each state being entitled to one vote for each ten units or fraction thereof, of its membership in this Association. The state vote shall be cast as the majority of the units represented in the convention from that state shall decide.

In the first place, although the capacity vote has governed the Association for the past twelve years, it has never once been called into use, and probably never will be. In case it should, however, the vote must be according to capacity by states. Each state being entitled to as many votes, as a state, as its members have units of representation in the National Association; and still the vote may be viva voce, so far as the states are concerned. Yet the "Alleged M. J.'s" continue to howl about "non-recognition of state organizations." In citing the case of Mr.

Arnold, THE Millers' Review is either malicious in its intent, or ignorant of facts. Mr. Arnold purchased the rolls in question contrary to the direct instructions and warning of the Association to its members, and subsequently acknowledged this to be a fact. His action was in defiance of the laws and rules of the Association. He certainly deserved no protection under the circumstances, but regardless of his action, he is covered by the protective bond of the Phoenix Iron Works Co., held by the Association, and the National Association will see that he is protected so far as it lies within their power to enforce the fulfillment of this bond. The Association has its laws, if a member pays no regard to them, why should that member, rich or poor, large or small, be entitled to privileges that no one else can claim or expect? We are informed that Mr. Arnold is satisfied with the decision of the Executive Committee in his case, as was evidenced by the fact that he was one of the first to pay the assessment recently called, and thus maintain his good standing in the Association. If he is satisfied, who else has cause of complaint? Such distortions of truth and facts are pure malice and fall flat before those who see matters as they are.

WE publish an article elsewhere by the veteran miller, Homer Baldwin, of Youngstown, O., which will be read with interest. It is from the original manuscript and therefore correct.

AMONG our callers during the past month, were Jonathan Mills, Columbus, O.; B. F. Ryer, H. Spaulding and Robert Aitchison, of Chicago; Chas. Knickerbocker of Jackson, Mich.

THE total value of breadstuffs exported from the United States during the seven months ending July 31, 1890 was \$92,773,352 as against \$87,036,654 for the corresponding period in 1889.

THE Stationary Engineer of Chicago, has been changed from a monthly to a weekly publication. It is recognized as the ablest engineering paper in the West. We congratulate the publishers on their evident prosperity.

PRESIDENT JAMES, of the Millers National Association, has been enjoying a vacation at Brant Lake, N. Y. He says: "I have been alternating between days of exquisite laziness and days of the finest black bass fishing I have ever known."

THE National Association of British and Irish Millers report a decided increase in wheat production in Russia, Roumania, Austria and Hungary. They think that America is approaching the time when she must considerably increase her wheat acreage or cease to be a wheat exporting country, such will be the home demand.

THE South Dakota Millers Association held a meeting at Huron, Aug. 6. It was well attended. It has now 29 members. The Association decided to unite with the Millers' National Association, and elected W. H. Stokes to represent them in that body as director. L. G. Beynon of Brookings was elected president, and Charles A. Lum, of Aberdeen, Secretary of the State Association. The next meeting will be held in Brookings.

MICHIGAN millers settled the exchange question by adopting a resolution that all exchange business of the members of the association be made on a basis not to exceed 36 pounds of flour and 15 pounds of bran per bushel of 60 pounds. This is equitable to the farmer, and leaves a small margin to the miller. In any event the farmer always has the option of selling his wheat in the open market, and buying flour in the same place.

C. A. PILLSBURY, the Minneapolis miller, has returned from his European trip, and says that the French and North German crops are below the average, that English crops look poorly with little prospect of improvement before harvest. Russia has an average crop. He

believes that the foreign demand for American wheat and flour will be as great as ever before. He predicts a heavy rise in the prices of wheat and flour in the near future.

THE Millers' National Association is increasing in membership daily. Kansas and South Dakota Associations are the latest additions of State Associations. Individual millers representing mills of all sizes are becoming members. All this in spite of the heroic efforts of some papers which were formerly considered meritorious by the trade. There is no longer any doubt that millers, like other manufacturers, believe in the principles of organization for mutual benefit.

THE National Association of British and Irish Millers met in convention at Edinburgh, July 29. A number of interesting papers were read and their publication fills the columns of our British contemporaries with renewed interest. A paper by Mr. A. Steiger on "Roller Milling for Small Mills" is especially interesting. Sir J. M. Case (formerly of Columbus, O.) submitted a paper on "American vs. British Milling." He has had milling experience on both sides, and ought to know his subject well.

MILWAUKEE REVIEW.

HERE appears to be a better feeling all along the line in the breadstuffs market. Prices have materially advanced, both in grain and the manufactured article. The price of flour has not advanced in proportion to the advance of wheat, but the millers are jubilant and look for a good milling season. They know that flour will soon come to the level of wheat if the price of the wheat remains firm, and they know too that when there are high prices, there is more inquiry, and when inquiry is brisk it is easier to add 25c. or 40c. per bl. and get it, than it is to add 5c. when the price is low. The price of flour has advanced about 25 to 50c. per bl., according to grade, and millstuffs are astonishingly high when we consider the very abundant crop of most excellent hay that has been secured all over the country. The farmers and stock raisers are the great consumers of millstuffs and with a superabundant crop of good hay it will be impossible to hold feed up to its present price. When \$14.50 to \$15.00 can be got for sacked bran, we have no doubt millers are selling freely.

The export markets are following ours, but very slow and deliberate. As yet there is no money in milling for that trade, but all indications point to a good demand on this crop. Our private advices continue to speak of the very unsatisfactory harvests in Europe, and their statisticians figure the world's deficiency of wheat at 145,000,000 bushels.

These with the universal complaint of of a very small potato crop, and an acknowledged light corn crop, would seem to be good grounds for the present price of wheat. These statistical conditions however, are not unusual at this time of the year, and there are not wanting those who believe in lower prices, based of course on the generally accepted fact that Russia's crop condition is 110 as compared with the previous year. Everybody knows that Russia cut a respectable figure in the European market last year; what will she do this? She has fixed the price two years. With a still greater crop it is reasonable to suppose she will do the same this year.

The course of the market seems to be a repetition of the last three years when the prices were pushed too high early, and when the receiving and milling season fairly set in, everybody found themselves operating on a declining market, that lasted through the best part of the year.

The milling season can hardly be said to have commenced yet, as new wheat is too soft to grind without a mixture, and old wheat is scarce and poor. We learn, however, that the new crop when it comes into condition will be a superior article.

The Government statistician has reduced his estimates to 410,000,000 bushels and many others place the total crop at 405,000,000.

Nevertheless we will export this year 100,000,000 bushels of wheat.

DONALDSON.

MILWAUKEE, Aug. 18, 1890.

MILLERS' INSURANCE.

THE following pertinent letter from Secretary Reynolds to members of the Michigan Millers' Association and the State Insurance Commissioner's letter will be very suggestive to millers. Secretary Reynolds' researches in this direction may well be followed by secretaries in other states. Following are the letters referred to:

Secretary's Office Michigan Millers' State Association.

STANTON, MICH., Aug. 9th, 1890.

Members only:—I hand you herewith copy of a letter from the Commissioner of Insurance in answer to some inquiries of mine regarding a plan to get at the responsibility of Fire Insurance Cos. for the use of our Association. The subject is one of great importance to you all. The member who carries but a \$1000 insurance wants it good in case of loss just as much as the one who carries \$100,000.

There is nothing of equal importance in the whole range of a business man's operations, which he has so little personal knowledge of, generally speaking, as the standing and responsibility of the companies carrying his risk.

The meager information obtained usually comes from the agents taking the business, and may, from sordid motives or culpable ignorance of the facts, be very faulty.

With your approval I shall be pleased to undertake the organization of an Insurance Information Bureau of our own and with the aid of our commissioner (which from the tone of his prompt and courteous letter I have no doubt he will give) and the reports issued by other states, which I will apply for at once, we can secure such information as will be of great value to us. At your convenience send me a list of your companies both mutual and stock with the amount of each policy, and I will at the earliest moment give you all the information I can about them. Yours Respectfully.

M. A. REYNOLDS, Sec'y.

INSURANCE BUREAU.

LANSING, Aug. 8th, 1890.

M. A. Reynolds, Sec'y Michigan State Millers' Ass'n, Stanton, Mich.

Dear Sir:—Your favor of yesterday's date is at hand. I have no doubt as to many of the members of your Association carrying fire insurance policies that are entirely worthless or nearly so, and none of those written by companies unauthorized to do business in this state can be collected in case of loss through our courts. The only safe course is to insure only in authorized companies. I think that if your Association should demand that all companies patronized by its members should comply with our laws, it would have a good effect and afford them better protection. The most that I can do for you is to send you a copy of my last report which shows the condition of all companies authorized to do business in Michigan Dec. 31st, 1889. Since that date the following named have been admitted. (The names of six companies follow. M. A. R.)

The various state reports would furnish you information concerning many of the companies handled by brokers, but not all. Some brokers furnish policies in alleged companies of which no quotations are available. Yours Truly,

HENRY S. RAYMOND,
Com. of Ins.

[Copy.]

A TRIBUTE TO CORN.

WE present on this page an illustration showing an exterior view of the Corn Palace for 1890 at Sioux City, Ia. The *Sioux City Journal* in describing it says:

More than twice as large as any of its predecessors, different in design and scope from anything ever before conceived, the Corn Palace of 1890 will be not merely a thing of beauty, but it will be a wonder, even to the people of Sioux City. The strongest argument that anyone ever used against the perpetuation of this great festival was the fear that it might grow old, might get monotonous and fail to attract the necessary crowds because there were no people left who hadn't seen it. That was on the theory that all Corn Palaces were alike. But no one has ever seen the like of what the Corn Palace of 1890 is to

be. None of the many thousands who have gazed with wondering admiration at the fruits of Sioux City genius as shown in the three previous Palaces can claim to have any idea of what this Palace is unless they come here September 25 next to see it, and they will need to stay to the close, October 11 to see it all.

To begin with, the Palace of 1890 is to be 264 feet square, or more than twice as large as last year's Palace, which was 120 by 240. It will cover nearly the whole block cornering north-east on Pierce and Sixth streets, last year's location. The central building will run up to the imposing height of 172 feet, the upper 100 feet being a dome. This main building will be in the form of an octagon 166 feet across. In the center will be an open space 78 feet across, without a post or any thing to interfere with a view of the whole interior decorations. This space will run up 66 feet with an artistically painted sky at the top, studded with stars made of incandescent electric light.

The gallery in this Palace will be clear around the interior of the rotunda, 44 feet high and will be 25 feet wide. Dispens-

those who have seen all previous Corn Palaces no less than those who have never seen one. There will be grottoes, beautiful and original ideas worked out in corn and showing the wealth of the great agricultural Northwest as well as the ingenuity and artistic taste of her people. One of the wonders in preparation is a miniature Niagara Falls, located so that it will be the first thing to greet the eye of the spectator as he enters the building. Here he will look down to the farthest part of the great structure, 272 feet from the main entrance, with an uninterrupted view 48 feet wide and 44 feet high. The space of one side of the octagon, 48 feet, which is the entrance to the back part of the Palace, will be crossed at the gallery floor by a rustic bridge, from which all parts of the Palace may be seen.

The decorations this year, both interior and exterior, will be projected on a scale grander and more elaborate than ever before. Of course all these things mean money and lots of it—more than any previous Palace has cost; but it isn't the Sioux City way to stop to count the cost too carefully when the reputation of the Corn Palace city of the world is to be maintained.



Sioux City Corn Palace.—Opens Sept. 25; closes Oct. 11, 1890.

ing with the high gallery feature will be good news to nervous people, for it will entirely remove the danger that has been felt before from crowding them. For everybody wanted to get as high as possible. This gallery will give every one an opportunity to see all there is to be seen, and it will be adorned with various exhibits as well as overlooking all the rest of the Palace. Five wide stairways leading to the gallery will remove all chance for a jam.

East of the main building opening into it by two gates, will be an auditorium to seat 1,000 to 1,300 people. The band stand will be between this and the rotunda so that the music may be heard by every one in the Palace, while those who desire can rest and listen to the music undisturbed by tramping feet. A sounding board will be erected above the band stand to throw the sound into the auditorium. This building will be about 40 feet high, and will be built back of the houses now standing on Sixth street. In front of them, covering the whole will be a wall 40 feet high, giving the whole the appearance of a solid building.

At the north of the main building will be another lower structure running back 100 feet. This building will run around back of the main building to connect with the auditorium, and will be 100 feet deep clear around, roofed and concealed by a battlement the same as on the Sixth street side. All the buildings now on this ground except the Spaulding house on Pierce street, will be removed and the space used by exhibits of all kinds, and some special features that, as entirely new, will astonish

HOW TO MAKE MILLING PAY.

(A paper by HOMER BALDWIN, Youngstown, O., read before the Michigan Millers' Association at Lansing, Mich., July 22, 1890.)

AS I see it, the ultimate aim and object of all millers is to so handle a fixed quantity of wheat, that from its products enough may be realized to repay, first, the cost of the wheat and package used; second, all expense incurred in the manufacture and sale of the product; third, leave the largest possible surplus for the use of the machinery, capital and risks for conducting the business.

How to accomplish this desired result is the question submitted for our solution.

The requirements are good material, good machinery, good methods and good men, united with intelligence, integrity, industry, economy, patience and perseverance. A fundamental rule is, use the gentlest appliances that are effective; use harsh treatment only where absolutely unavoidable.

Now, inasmuch as flour is made from wheat alone, we must eliminate all other matter and use absolutely clean wheat, freed also from all adhering impurities, for economy's sake, causing as little waste as possible in this operation. Whereas, our aim is to place in the flour barrel all the flour the wheat contains in the best possible condition, uncontaminated or deteriorated, and to place in the feed bin all the feed, entirely freed from flour, it becomes necessary to use the best methods and appliances.

Now, what are the best methods and appliances? As the rule is to use such as

are gentle and effective, I would advise *sieve scalpers* for the separation of the break stocks, and slow-running round reels and *air purifiers* which are absolutely dustless and wasteless.

As the best flour is made from clean, well-purified middlings, it is important that we make all the middlings possible for this purpose, very gradually reducing the wheat so as to secure all the middlings we can get, and, also, have absolutely clean bran.

Having made the middlings, the next vital question is how we can best clean the same, with the least power, waste and discoloration, both of the middlings and the exhaled material, or flour dust. Heretofore we have employed sieve purifiers with their indispensable dust-rooms or dust-collectors, causing much waste and discoloration of the material, dust-laden air, and requiring much power, all of which it is highly important to avoid. A much better way has made its appearance. It is a well-known fact that all the impurities (except the germ) intermingled with the middlings, are of less specific gravity than the middlings. It is also equally true, but not so well known, that the air in all mills contains so much smoke and dirt that its use by sieve machines discolors both the middlings and the dust extracted in the operation of purification, hence it is of the greatest importance this should be avoided.

By the proper application of specific gravity and the use of a return air current, thus using the same air continuously, we can thoroughly and economically purify our middlings and do so without any waste or discoloration, and entirely do away with all sieve machines, dust-rooms, dust collectors and dust-laden air, and save a vast amount of power and greatly reduce our fire risks. Therefore, I would recommend the entire abolition of such machines, and the substitution of air machines built on the principles heretofore stated.

The machines which best embody the before stated vital principles, with which I am acquainted, are the Holt dustless purifier and the Jonathan Mills air-belt purifier. These machines are absolutely dustless, without waste, and require nominal power.

Believing this to be true theory, I have reduced it to practice, and from the results I predict that the time is rapidly approaching when sieve purifiers and dust-rooms and dust collectors (except for grain cleaners) will become as scarce in all good mills as is the millstone today.

Make all the good flour you can, and when you can make no more good flour, then make all the poor flour you can sell for more than feed and pay you the cost of manufacture.

Be zealous of your reputations and keep your brands inviolate. Never think that printer's ink on a sack will raise the inherent value of its contents.

CONVENTION OF STATIONARY ENGINEERS.—The National Association of Stationary Engineers will hold its next annual convention at New York, beginning Sept. 2. Matters of considerable interest are likely to come before the convention. This association consists of an important body of men, and has grown rapidly in numbers and influence since its organization in 1882.

It lets the question of wages and strikes for any purpose entirely alone, being organized for different purposes, viz., those of mutual help and improvement. In these directions commendable progress has been made. At the meetings of the subordinate associations questions relating to the vocation of the members are discussed, and lectures are listened to. Such a course cannot be other than beneficial, not alone to the members, but to the community as well, especially to users of steam power.—*American Machinist*.

(From Our Regular Correspondent.)

OUR ST. LOUIS LETTER.

Reported Trouble in a Commission House—Mexican Visitors—St. Louis Receipts, Shipments and Flour Production—Local and Personal Notes.

THE principal topic on 'change this month was the rumored disagreement between the members of the Grier Commission Co. Since the retirement of Mr. Grier the company has been under the management of J. B. M. Kehlor and Geo. Updike, the former attending to the flour business and the latter to the grain business. According to the report in the St. Louis and Chicago papers both of these gentlemen have been striving for supremacy in the company's affairs. To gain this end, Mr. Kehlor, it was said, would, knowing Mr. Updike's intentions, play the market to his own personal interest and to the decided injury of the Grier Commission Co. Of course he was obliged to stand his share of the losses, but his private gains more than counterbalanced the loss. In this manner the Grier Commission Co. lost heavily and Mr. Updike was put in no enviable position. Two week ago matters came to a crisis and Mr. Kehlor, after examining the company's condition, decided that either Mr. Updike should sell out or he should buy his share of stock. This is the story as reported on 'change and in the papers. Both Mr. Kehlor and Mr. Updike deny the whole account, but nevertheless Mr. Updike has resigned his office of secretary and it would not be a surprise if he left the concern.

Another incident of the present month was the visit of the party of Mexican merchants, who are just completing a trip of inspection throughout the states. They were the guests of the Merchants' Exchange, and were shown through the city by a reception committee. While here they took the occasion to visit the Todds & Stanley Mill Furnishing Co. and made a careful examination of their machinery. As they are now raising more wheat in Mexico than formerly they have need of a better class of mill machinery, and as their visit here was not wholly for pleasure, it may result in a good thing for the Todds & Stanley people.

It is surprising how small a quantity of wheat is shipped on the Atlantic seaboard in comparison with California or even South America. On August 1st a report for the preceding month credits the Atlantic ports with but 920,000 bushels as against 1,240,000 bushels from South America and 8,224,000 bushels from California. These facts are little known by our Eastern friends who, foremost in everything else, are hardly credited with the last place in the wheat shipping markets while their fellow state, California, manages to lead India, her nearest competitor, by 2,400,000 bushels.

A matter which has caused some attention from the different markets throughout the country is the time of issue of the monthly crop report. The present arrangement is for 4 P. M. Chicago, however, is entirely dissatisfied with this state of things. Accordingly it has written to St. Louis for assistance in having it changed to 1 P. M. Eastern time. Their reason for wishing the change is that with the present arrangement the report has the effect of creating a disturbance in values after the close of the regular market, while were the 1 P. M. arrangement to be adopted, it would allow the Western markets to adjust themselves to the character of the report before 'change closing. Chicago says nothing of the advantage derived over the poor farmer. He is of no consequence to anyone, least of all to the Chicago grain men. After due deliberation on the Chicago proposition the Board of Directors of the Exchange decided that Chicago was altogether too charitable (?) to her country friends and that it remained for St. Louis to rectify that error. In pursuance of this plan it suggested to Hon. J. B. Dodge, of

the Department of Agriculture, that the hour of issue be changed, not to 1 P. M. but to midnight. In this case all the parties interested would be placed on an equal footing as the matter would receive publication in the morning papers, accessible alike to grain men and farmers. This plan was hardly feasible, as midnight was outside of working hours, and so Mr. Dodge informed the Exchange Directors. St. Louis is heartily opposed to the change to 1 P. M. and have proposed 6 P. M. as more suitable. In any case the change will not be made before September and with such a variance in opinions among the leading market centers it is probable that no change will be made.

At present there is a well defined kick from Chicago on the recent action of the Inter-State Commission, which has decided to give St. Louis 1c per 100 lbs. less differential against Chicago than she formerly had, or 5c as against 6c to eastern seaboard. Chicago has sent a delegate to the commission, to try and get the old rate for St. Louis, but it is hardly probable that they will get it.

WHEAT.

Both receipts and shipments have fallen off this week as against last week. Yet despite the booming and speculating this week in wheat No. 2 and 3 red held their own and closed at same prices as at the beginning of the week. Friday's quotations were No. 2 red 95½@96½, and No. 3 red 92@92½. Wheat reports continue discouraging. The last report from Illinois says that not more than a third of a crop will be had. Missouri crops are better than was expected some weeks ago. Wheat, however, is so high and flour so low in comparison that country millers are loud in their complaints.

FLOUR.

The mills had a fair output during the month, with a total of 266,728 bbls. Of this amount the

	Barrels.
Plant produced.....	29,333
Planet produced.....	34,200
Victoria.....	20,000
Eagle Steam.....	22,500
President.....	9,800
Regina.....	13,120
Alton City.....	17,500
Jefferson.....	13,600
Saxony.....	10,800
Kehlor.....	29,480
Crown Mill.....	19,500
Camp Spring.....	18,640
Meramec.....	7,000
Hazel.....	15,000
United States.....	7,715
Carondelet.....	1,500
St. George.....	2,000
Total.....	266,728

Shipments for the last week were 69,278, and receipts amounted to 27,257 barrels.

Quotations on flour for Aug. 16: XXX, \$2.55@2.65; family \$2.90@3.00; choice, \$3.20@3.30; fancy, \$3.90@4.10; Extra fancy, \$4.50@4.60; patent, \$4.90@5.10.

The flour market is very quiet, little or no business being done, and that business was mostly on Southern orders. Of course, flour followed wheat in its boom, and prices were higher than last week.

Millstuffs were in good demand from Eastern buyers and millers were busy filling orders. Bran maintained a high price during the week until to-day, when it experienced a decline. Sacked bran is quoted at 78c.

NOTES.

Mr. H. G. Craft, the St. Louis delegate to the Chicago meeting of shippers and carriers convened there, to consider the new bill of lading, has returned and handed in a report of the work accomplished.

A \$10,000 fire occurred at Holliday, Mo., in the burning of a mill owned by J. B. Blade. It carried only \$5,000 insurance.

The Yaeger Milling Co. have secured the services of David R. Simpson, late of the Todds & Stanley Co., to fill the position of head miller in their Carlinville mill.

Mr. J. H. Kennett has been appointed Assistant Secretary of the Merchants Exchange, in place of L. W. Stebbins, resigned July 1st.

An \$85,000 grist mill is to be built at Concordia, Mo., by the Farmers' and Laborers' Union.

The Merchant's Exchange directors decided, at their last meeting, to abolish all private wires on the Exchange. This action will affect only four firms.

J. R. Blevins sustained quite a severe loss in the burning of his mill at Manchester. No insurance.

A. J. Meek, president of the Southern Illinois Millers Association, has sent out a notice that the quarterly meeting of the association will be held at Murphysboro, Illinois, on Thursday, Aug. 28. Mr. Meek has been here this week not necessarily for wheat but rather to see the general drift of the market.

WALTER HOWARD BAIN.

St. Louis, August 18, 1890.

ON FLOUR BLENDING.

BY T. W. HIBBARD.

(Paper read and discussed before the British National Association of Master Bakers, June 11, 1890.)

MR. PRESIDENT AND GENTLEMEN—When your president asked me if I would read a paper at your annual meeting, I felt very much honored, but at the same time uncertain whether I could give you anything interesting or useful. If you honor me by thinking it interesting, I trust you will contribute to its usefulness by having a full discussion on the points raised. During the last decade two striking points are to be noted in the milling industry. First, there has been a complete revolution in the art of converting wheat into flour; and second, an enormous extension of flour manufactories, embracing North American, Atlantic, and Pacific, Australia, Austro-Hungary, Russia, Germany, etc., all competing for your business. Taking the first point it will be necessary just to touch lightly upon the methods of milling, and first the old, to show by contrast the new. The old method was very simple. The wheat passed through millstones which were set close enough together to reduce the wheat, so that when the product was separated by silkreels and other appliances, the result was one grade of flour. The new method is much longer and the reverse of simple; but I will endeavor so to present it to you as to enable those present not conversant with it to grasp the main points which affect the title of this paper. The wheat passes successively through four or five pairs of suitably grooved chilled iron rolls, one roll of each pair running at a much higher speed than the other, thus tearing open and separating the floury part (endosperm) from the outer skins. Between each rolling a sifting process takes place, and the product thus obtained is first freed from flour (named breaks flour) and then purified by passing air currents through it as it slowly travels over an inclined vibrating sieve. This operation removes the impurities, such as small bits of skin, beard, fibre, cellulose, dust, etc.—discoloring matter. We take the largest size of purified broken particles, called semolina or middlings (which contain the germ,) pass through smooth rolls, which crush the middlings and flatten the germ; the latter is then sieved off. Next the crushed product is freed from flour and purified as before; then joining the smaller size of purified middlings are reduced by smooth rolls, and the flour dressed out successively until all high-grade flour is extracted. The germ tailings, purifier tailings, etc., are then rolled and dressed until all the remaining flour is removed, the flour getting poorer in color as the end is approached. This flour goes as households' or bakers' flour. The last two or three per cent., however, is so poor as to render it unfit for households; it is named low grade. The product of the last break roll is usually treated by itself and the flour can be kept separate or blended with households or low grade; it is named bran flour.

The high grade would produce a loaf sweet and clear, of medium size, beautiful bloom and appearance.

Households, a loaf larger than high grade, wanting in color and bloom and with a tendency to coarseness in flavor.

The bran flour a loaf devoid of bloom, flavorless, poor color, chippy and dry.

The bran flour would contain the most gluten, and produce a large loaf of bread dark in color and moist.

Low grade, a loaf of a dark yellowish sodden appearance and coarse flavor, which becomes much worse as the flour gets age.

The foregoing fairly represents the flour products of a modern flour mill, either working upon single or blended wheats. You thus have flours varying in color, strength, clearness, bloom, flavor and dryness from the same wheat or mixture of wheats, and these characteristics will have to be taken into account when blending for your bakehouse. You will also have to take into consideration the very many varieties of wheat usually selling on British and Irish markets (each having its special characteristics), and deal with them if you determine to work as recommended by high authorities on baking, namely, on single-milled wheat flours. To most bakers the mere enumeration of the number of sorts he might have to blend would be sufficient to deter him. But some of you may say: We will only take certain sorts with which we are well acquainted. The answer to that would be, such sorts may not be obtainable at all some years, or if obtainable, only at a relatively high cost, compared with other equally good flours, as entirely to forbid their use. The quality of most wheats vary considerably from year to year (witness this and last year's American wheats), therefore the flour must vary. As a matter of fact, the baker who would be his own blender, and who, at the same time, wishes to keep the cost price of his mixture down, so as to compete with his brothers around, must be constantly changing his blend with possibly disastrous results as regards his trade; very frequently that which looks right in theory does not work out well in practice. The price of bread is the same frequently many months together; while the price of wheats of about the same intrinsic value alters materially, in fact constantly occurring, hence the desirability of buying that which is (quality considered) cheapest. Evidently, then a thorough knowledge of blending is absolutely necessary, and the question must be answered: Who is to do it—the miller or the baker? I will suggest some reasons why the miller is the fittest, you to draw your own conclusions. Knowing the characteristics of all the important wheats of the earth, with the variations due to season, is a part of the education of the miller, and upon his knowledge in this respect, with constant watchfulness, will mainly depend his custom from you, gentlemen, and success in life. English wheat, you all know, gives a sweet, nice flavor to your bread. It varies considerably both in quality and condition—that is to say, from dry to quite damp; therefore, a good knowledge how to heat such wheats is essential. Some very dry wheats such as Californian, are required for blending, to absorb the moisture given out while milling; Russian, also to give elasticity and height to the loaf. The various Russian shipping ports widely differ in the quality of their wheats; scarcely two samples are just alike. Here judgment is needed. By careful selection of wheats, and blending them with judgment, a high-grade and households from a high to a medium standard can and is obtained in our best British and Irish mills, with a variation of not more than sixpence to a shilling per sack from year to year on a given brand. The baker buying from such mills knows what he is going to get within a sixpence (as a rule) per sack. When he buys a foreign brand of flour can he tell what he is to get? I only put the query, not having a very large experience; but judging from what I hear from bakers, the variation is sometimes considerable. It has been in my own particular district a custom on the part of millers to study the requirements of their customers

as to the peculiar quality suitable for their trade. For instance, there is a demand in one large centre for flour made mainly from cone wheat (which is a bearded red wheat), and how to produce this flour is the miller's trade secret. This flour produces quite a small (comparatively) number of loaves to the sack, but the bread is like the good wine which needs no bush. It is an advertisement to the baker on each customer's tea-table. A journeyman baker I know well, by his industry and a free use of this blend of flour, in a few years worked up a trade of thirty sacks per week, and that in the face of opposition on every side in the shape of one penny less per four-pound loaf. This is a case where the miller's blending has scored a point. Flour mills have every facility for mixing flours, but there is no other system of mixing which can compare with the thorough assimilation of the products of various wheats blended previous to grinding in a modern flour mill. How does the case stand with the bakers? I think you will concede the large majority have not the facilities for accurately mixing varying quantities of different sorts of flours. The simplest and, in my opinion, the best mode of blending flour would require motive power, such as a steam or a gas engine; a set of automatic mixers set in a line, adjustable to various quantities per hour; a conveyor, arranged to take from all the mixers and discharge on to a sieve, either rotary or reciprocating, of sufficient capacity. The sieve should be set over the flour-bin, and there should be a space of a few feet for the flour to fall, so that each granule of flour should come in contact with the air and with each other. The good result of aerating the flour in this way would be found in an increase of loaves per sack. The baker's usual method of mixing by shooting sacks of flour into a bin is a mixture, but it is not blended, and the good results of blending are not obtained. All violent means—rubbing and dashing about—should be avoided, as it tends to make soft, dead flour, a loss both in strength and bloom. The flour, after blending should be allowed a few days to assimilate; therefore it would be well to have two flour-bins, to be drawn from alternately.

It is at least questionable whether it would pay a baker to buy single-milled flours had he even every appliance for mixing, inasmuch as it would be necessary for him to buy large parcels, to get the price right, owing to the wheat being specially milled; and if he used many sorts his stock would be very large. It may however, be pointed out (and this brings me to the second notable point) that most countries which send wheat also send flour, and that the baker can buy single-milled wheat flours in that way. Yes, he can buy some (particularly American brands) if he will take the risk of variation of quality, the brands being generally importers' brands.

There is a widespread notion that only by blending American flours with British makes can lofty, sound loaves be made. This notion is extensively pushed by American flour dealers. But is it a fact? Let us turn to last year. The American crop of 1888 was a comparative failure, and American wheat and flour so high in price as to be practically out of the market. Were the loaves smaller or less sound? Rather the other way. The household bread has not been better for many years, and chiefly so because low grades of American flour, which constitute the bulk of imports, were so high in price that even the chronic undersellers were compelled to buy sweet British-made flour. Bakers should set themselves a better task than lowering the character of their products by a too free use of this low-grade American, generally called "bakers' grade" (really low grade), as if bakers were not to have any cream, but only doubly skimmed milk. It is only just to the baking trade to say it is be-

lieved, and with good cause, that most of the second-grade American "bakers'" imported finds its way into the British mill chiefly to those mainly working on native wheats. Wherever this flour is extensively used, there you will find poor bread and low prices, and frequently, when some baker does study excellence and produce really nutritious, sweet, inviting-looking bread (which cannot be done with low-priced flours) at a living rate, he is held up to public execration by some philanthropic individual in a local newspaper for overcharging, and his price is contrasted with the cheap stuff. Nevertheless, let excellence be your motto; you can mould public taste if you will mould your loaves from sweet, colony flours. The new mode of flour manufacture has put in the hands of millers, during the last few years such possibilities of improvement in quality that a higher grade was to be expected in the loaf; yet that is exactly the time the baker has fostered the use of inferior flours. It is quite a common complaint amongst millers of the lack of demand for high-grade flour. In selecting flours for blending the following points, in addition to cost, should be considered: Yield, color, appearance, and, above all, sweet flavor when converted into bread. The latter is the criterion of excellence with the general public. Witness the enormous extension of the business of the late Mr. Neville. The flour he bought was not cheap, not manufactured abroad, yielded but a moderate number of loaves, not extra prepossessing in appearance, but eminently sweet and nutty-flavored, nutritious and satisfying. The metropolitan public, grateful for a good article, gave him their custom; in other words a fortune. Having called attention to American low grades, I now come to consider their higher grades, Atlantic and Pacific, as well as those from other countries sending appreciable quantities, with which some of you may deal. Patents made from American No. 1 hard spring wheat, and only from thoroughly purified stuff, if such can be obtained regularly and up to grade, are perhaps the most useful flours for blending a baker can have for a high-class trade. The good points possessed by such a flour would outweigh any other in the world. When used with such a flour as before spoken of, viz., the cones flour—the latter put in at the dough stage—the loaf produced would be most excellent. Spring straights make good sponging flours when a large proportion of fine English wheat flours are used. Winter patents may be used to advantage blended with fine mellow flours when no sponging process is used, and the loaf would be what is called "home-made"—sweet, colony and nice eating. Winter straights are somewhat similar to patent, but lower in color. All these flours give a fullness to the loaf. Pacific flours are very dry, and produce a small uninviting loaf, chippy and flavorless, but are useful for blending. A blend of Californian and Oregon with English wheat flours results in a wonderful improvement in the loaf, as compared with either separately. This is due to the extreme dryness of the one, combined with the highly matured starch and small percentage of soluble albuminoids counteracting the softness of the other, due to moisture and large percentage of soluble albuminoids. If to this blend a proportion, say, of one-sixth of Walla-Walla is added, a richer-looking flour is produced. In either case the loaf would be small, but sweet and very fine colored. With the same blend, with 30 per cent. of fine spring patent, the loaf produced would be very showy. Australian flours, produced by roller process and of high grades, are very high class. The loaf produced would be of good bloom and medium size; it would blend well with English wheat-flour and almost any strong variety. Indian flours milled abroad are not at the baker's disposal, but can be obtained from Eng-

lish mills, and generally at a comparatively low price. The high grades from Bombay are fairly good, being of fair color. Generally speaking Indian wheat-flours produce bread of poor flavor, chippy and dry; a tough crumb, but wanting completely in size and appearance—not inviting, not gratifying, where excellence is sought to be obtained. Hungarian flours high grades, when properly heated, produce bread of beautiful bloom, sweet and rich. Such flour blended with cone flour and flour from "Talavera" wheat would produce the sweetest and most inviting bread. If a loaf is desired which shall be sweet and nutty flavored, of good size and appearance, of fine bloom, and which shall keep nice and moist for days—in fact, perfection—this is the mixture I should recommend: Twenty per cent. high-grade American spring patent and 10 per cent. high grade from White Dantzic for the sponging, 25 per cent. cones flour (high grade or medium grade), 25 per cent. Talavera straight grade (ground on mill-stones), 10 per cent. fine winter American patent or fine Polish patent, and 10 per cent. fine Hungarian for the dough stage properly assimilated, using brewers' yeast, and baking in an oven heated with wood.

To sum up, if bread is required as follows, the flours best adapted for blending, whether British and Irish or foreign made, will be for

Size of Loaf.—Russian and American spring straight grades.

Size and Quality.—Russian, American spring and winter high-grades, with an admixture of fine English high-grades.

Sweetness.—Hungarian, Polish, American spring high grades; English, particularly that from Talavera and cones.

White Color.—Oregon, Californian, Chilian; American winter, and white English—all high grades.

Yellow Color.—Walla-Walla, Kubauka, hard Chilian; some varieties of English.

Size and Cheapness.—Low-grade American springs (bakers'), common Russian, Indian and red English.

Cheapness.—Lowest grade American, Indian, Persian, common English.

DISCUSSION.

The Chairman remarked that the paper just read indicated one of the advantages of the National Association, in that it induced millers to come forward to reveal the secrets of their calling.

Mr. Arundel, replying to a question as to the practicability of blending on a large or small scale in an ordinary bakehouse, said he had been convinced about twelve months ago that it would be to his profit if he could arrange to buy flour of separate kinds and blend it himself; he was also convinced that the only way to blend it satisfactorily was by machinery; but on examining into the matter he found he could not spare the room required by most blenders. However, he had gone from bakery to bakery, inspecting machinery, and determined to get the best blender available. At last he ordered one from Prof. Jago, and he could now thoroughly support what had been said by Mr. Hibbard as to the result of blending flours. His trade was a family trade, and he had to make a pure, wholesome, sweet loaf with the nicest flour obtainable. Since he had put the blender in there had been a marked improvement in the quality of his bread and in the sweetness of its flavor. He only wished he had begun to blend by machinery earlier, for when he had bought milled flours he had often been unable to get exactly what he wanted. He was assured that every master baker would find it distinctly to his advantage to blend his own flour, and keep it three or four days before putting it in the troughs.

Mr. D. Thomson (Edinburgh) said that bakers were, all over the country, coming to the conclusion that they and not the millers should blend the flours. At Messrs. Inglis' bakery he had put up an automatic blender. This was the first instance in which machinery had been constructed

to sift, blend, store and deliver flour by checks automatically. The only difficulties in the way of enabling every baker to become his own flour blender, were the cost of machinery and the unsuitableness of many bakeries constructed many years ago. There was no reason, therefore, why every baker doing forty sacks a week should not have a blending machine on precisely the same lines, and with the perfection attained at the colossal bakeries the members had seen during the last day or two.

Mr. Godfree said that although he could not speak of blending by machinery, he thoroughly believed in every baker blending his own flour, because the baker knew, or ought to know, what flour would make a loaf to suit the local taste. If the baker trusted to the miller he might be suited during one part of the year, when the miller indulged in good American wheat, but at other times, when there was an influx of Egyptian and Indian wheats, the miller would be tempted to use them to the detriment of the baker. No doubt flour blending should be done by machinery; it could not be done effectually by hand. When blended the flour should be kept in the hopper a few days; it would make infinitely better bread.

Prof. Jago said the thermometer supplied one good reason why the blending of flour should be done by the baker. Assuming flour to be cheap, one baker might buy a blend from his miller in quantities to last three months; but that blend, although it made excellent bread in April, might make a poorer loaf in June; whereas the baker who bought single-milled flours could vary his blend according to circumstances. His experience was that during the last ten weeks, with the same flour in stock, the blend had to be radically changed in consequence of the change in the season. As to the machinery to be employed, it would be admitted on all hands that the plant at Messrs. Inglis' bakery was a credit both to the bakery and to the engineer; but for the small bakehouse it seemed that something simpler was required—something which could not go seriously wrong even in the hands of an ignorant journeyman. In Messrs. Inglis' bakery flours of various granulations had to be put in hoppers of corresponding fineness. But what if an operative put a sack of flour into the wrong hopper? The simplest blends of an ordinary bakery would seem to be one to hold 6, 8, or 10 sacks in one hopper, with a mixing blade of proper shape to revolve in the hopper and thoroughly mix the whole. Below it there might be a sifter, and thence a sufficient fall to enable the flour to be aerated.

Mr. J. Inglis said that it was so much the rule in Belfast and Ireland generally for bakers to blend their flour that it seemed very odd to hear so many bakers in England did not do so. When he entered the trade it was with a gentleman who had progressive ideas; and one of those ideas was to make a distinctive blend to suit the popular taste; and from that day forward he had been in the habit of buying many kinds of flour and personally judging as to the best proportions in which to mix them. And he felt sure that any baker who made a distinctive blend would find it profitable. But perhaps they were partial to blends in Belfast, for they were celebrated for blends of teas as well as flours.

Mr. Callard said that the majority of the bakers in the west of England bought their flour from two, or at most three, millers, and left blending entirely to the millers. He mixed his own flours, and attributed whatever success he had achieved to that fact, and he was certain that every individual success could be traced to individual blends. He had only introduced machinery three or four years ago, but had soon reaped the advantage in better bread, especially as the result of aerating the flour before it touched water.

THE DUNLAP BOLT.

"They are a Great Success as a Bolting System."

A LETTER FROM THE CLEVELAND MILLING CO. ON THE SUBJECT:

THE CLEVELAND MILLING COMPANY.
CLEVELAND, OHIO.

THE BRADFORD MILL CO., Cincinnati, Ohio:

August 6th, 1890.

Gentlemen—I have reserved an expression regarding the Dunlap Bolts until I felt sure I was right. I can now tell the story in a few words. They started off as I expected they would, and attended to business immediately. There is nothing strange to report. I find the fifty-three of them work like one and that they are a great success as a bolting system. There is no stock in the mill that they discriminate in favor of, but take hold of any work given them to do, and do it rapidly and well. As a further result we find that the power required to operate the mill is considerably reduced, but rather than have the power to spare we have used it to INCREASE OUR CAPACITY TWO HUNDRED BARRELS PER DAY. I hope that sometime in the near future you may find it convenient to visit the mill, personally inspecting the work and satisfying yourself that your bolting system is the best.

Yours very respectfully,

[Signed] W. F. PUTNAM.

ADDRESS ALL COMMUNICATIONS CONCERNING THESE MACHINES TO

THE BRADFORD MILL CO. CINCINNATI, OHIO.

(From Our Regular Correspondent.)

OUR BUFFALO LETTER.

The Market—Receipts and Shipments—Canal Rates—Geo. Urban's Bold Stroke—The Cooper's Union and Second Hand Flour Barrels.—The Cracker Trust—The British Syndicate and Buffalo Elevators—Personals.

Flour sold down to \$5.40 for spring Patents since last month, but with the advance in wheat \$5.80 was being asked and until about August 9, when No. 1 hard sold at \$1.09@1.10, very little was taken at that price. Not a bushel of spot either hard or northern wheat was offered here for six days and the accident at the "Soo" kept back purchases made to arrive. Small country villages were dependent on their brethren here who had a few bushels on hand but as they could not afford to be too liberal many orders were left unfilled. This is the state of affairs predicted in the UNITED STATES MILLER two months ago. There is plenty of Duluth wheat in New York and owners were kicking themselves for not leaving it in Buffalo when it was here. But hard wheat has been reshipped from New York to Buffalo and there is no certainty that it will not be down this year.

The enormous advance in wheat between August 9th and 13th caught millers with barely sufficient to keep their mills going, but a few had purchased liberally of "c. i. f." wheat. Still our millers did not catch on to this advance; in fact it is doubtful whether outside of a few speculators any money was made, as the universal opinion here was that wheat was too high. The present price of Patent spring is \$6.00@6.50, with winter about \$1 less. At these prices there was very little demand and instead of the usual activity among flour men when an advance takes place their faces wore a distinct trace of sadness. Last year "old No. 1 hard flour" was selling away up to \$7 per bbl. and going fast.

Following are the comparative prices

of cereals in this market last week as compared with the same time last year:

	NO. 1 HARD.	NO. 2 RED.	NO. 3 CORN.	NO. 2 WHITE GATS.
1890.....	1.12	1.02	53	45
1889.....	1.20	84	40%	31%

The amount of Duluth wheat in store here last week was only 182,854 bushels against 650,512 last year.

The grain trade of this port has at last exceeded the phenomenal year of 1880 when the receipts of grain and flour reduced to wheat were 55,476,299 bushels for the season ending August first. This year the figures stand 56,536,503 bushels against 43,752,354 last year.

Shipments by canal were 20,192,444 bushels against 15,351,102 last year.

Shipments by rail continue to increase, the amount carried from January 1st to August 1st being 22,558,730 bushels against 18,942,977 last year.

Canal rates were reduced, on August 11th to 4c on wheat and 3½c on corn to New York. The Canal Forwarding Association is prosperous; not the slightest evidence of discontent is apparent in that busy office. The system under which the "boys" are managing it, is as perfect as can be at present, but some wonderful improvements are contemplated next year.

Mr. George Urban Jr. and his brother William are receiving praises from our flour and grain men and the heartfelt thanks of the poor people whom they have released from the disgraceful sights thrust upon them by the neglect of the police authorities of this city. Walden avenue for several years past has been steadily gaining in notoriety. Gambling dens, dance hall, all-night houses, so-called club houses in which fake prize fights were held—in fact if you were to "scrape hell and skim the sea" a worse lot could not be gathered. The scenes especially on Sunday were of the most carnal description, the *frou frou* of the silks and laces of the *demi monde* being in the ears of law-

abiding citizens from Sunday until Sunday almost throughout the year.

The "road" extends from the Parade house to the Cheektowaga, about four miles, and it is at the latter end where the Urbans have their elegant property. George stood the depreciation of his property all along the line until this year when his "Dutch" was aroused and a week ago he brought suit against a number of keepers of saloons claiming \$10,000 damages. This called the police to their senses and the short haired fraternity, gamblers, etc., have either left town or are keeping very quiet. It will make no difference to Mr. Urban, however, as the suit will go on just the same even if the whole lawless gang close their doors and decide to give up business.

The receipts of new wheat in this market have been fair and the quality fully up to last year, if not a little better in point of condition for immediate use. A larger proportion of "smutty" loads is talked of but a comparison with last year's receipts show no change. The berry is plump, even and dry and old millers are taking it as fast as it comes in.

An attempt was made last week by the Cooper's Union to pass an ordinance forbidding the use of second-hand flour barrels. The move did not succeed but no doubt will some day in spite of the opinion of lawyers that it is unconstitutional. This use of second-hand barrels looks penny-wise and the little saving does not pay for the odium cast on all the products of the mill, even if the said barrels are only used for rye flour.

Mr. Rodebaugh, of Heinold & Rodebaugh, one of the trustees of the Merchant's Exchange has shown himself a financier in matters concerning that institution. Already there are fruitful signs of his pet scheme to redeem certificates of deceased members at actual value.

The Attica mill is reported running eighteen hours out of the twenty-four

and although local competition in the town is keen the brands turned out thus far are holding their own, both there and East. Mr. Charles J. Bork is evidently working for the success of his mill and this is sure to follow the right kind of determination.

The Buffalo newspaper editor blows about the cool breezes of Lake Erie and the many other advantages of Buffalo, at the same time finding fault with her citizens for going out of town for the summer. At the first opportunity, however, he hies himself away to the sea shore—to find fresh cause for growling probably.

The number of absentees on change is something beyond precedent during the month of August. Mr. J. F. Chard, of Thornton & Chester, is in Europe. Mr. Charles H. Gibson, of Whitney & Gibson, is at Saratoga. Mr. Daniel E. Newhall is visiting his parents in Milwaukee. Mr. Daniels, of F. J. Sawyer & Co., is in the mountains. Mr. J. G. Heinold, of Heinold & Rodebaugh is at Preston Springs, Ont. Mr. A. R. James is in Boston. Mr. Wm. J. Rardon is at Camp Retreat, Crystal Beach. Mr. M. L. Crittenden is at Fortress Monroe.

The cracker trust has managed to gobble up Manager Spencer, or rather the Ovens bakery, the largest cracker bakery in this city. The United States Biscuit Company buys 51 per cent of the plant and issues stock for the rest. George Mugridge & Son, the Niagara bakery, also large concerns, and several smaller ones have not been asked to sell. Manager Spencer has more faith in the "trust" than the rest of the cracker bakers gave him credit for. The trust will not last; you can pin that prediction.

The English syndicate, elevator-buyer, is snooping about again. He is no spook but a real live option hunter who is commissioned to look into the elevator business here and secure figures. He left with probably half the capacity of this

port in his pocket, but the prospects of his ever coming back to take possession are not worth mentioning as the price put upon them was higher than some of the tallest towers. Still, "we can come down, you know." But if ever the English syndicate tackles the Buffalo elevators they will be sorry just once.

The "boys" on 'Change went down the river on their annual picnic. It was of the usual order—dull except for the rattle of the poker chip devotees and it will probably be the last of its kind.

Work has commenced on the Niagara Falls tunnel project. The first engineer's tower was started August 1st in the Central railroad yard.

Parsons & Co., the Batavia, N. Y. millers, are busy doubling the capacity of the mill built last year.

The wheat crop in Erie county was never better than this year but so much cannot be said for barley which is only fair. The rain it is claimed washed out the seed and that standing will not be of good quality, not having filled out. The oat crop is practically a failure. Rye is good average. Hay is abundant but quality will not be No. 1 as the wet weather caused rot at the roots. Apples a failure. Farmer's reports of the grain crop are all bad but it is natural for them to croak.

Mr. Alex. Man is with us again as chipper as ever. His movements are mysterious. He drops into the Board of Trade building whistling his favorite

"Yerra, where did he come from?"

Musha, the wind blew him in."

whiles away an hour or two and then suddenly disappears for weeks. When he turns up again the information he possesses concerning business, the crops and the latest yarns is something marvelous.

A. P. Wright & Co. are making a fortune out of their commission business on this late advance in wheat. Their customers have all had the "tip" straight this time. Manager Bob Newell is the happiest man on earth when the markets are excited but this last up-turn was too much for even his flesh and blood.

Our old friend "Clint" Newman took in the races. As far as could be learned he did not invest in pools. But there are pools and pools and the crowd he associated with never goes dry.

Mill-feed is a scarce article in this market. A bid of \$18.00 per ton for coarse bran failed to bring out a carload. This is an unusually high figure at this time of the year.

BUFFALO.

August 16, 1890.

THE COUNTRY'S RAILROADS IN 1889.

THE Messrs. Poor have issued the introduction to their *Manual of Railroads*, for 1890. The New England group shows a surplus of \$1,943,549, against a deficit of \$154,611; the Central Northern a surplus of \$5,478,103, against a deficit of \$3,078,433; the South Atlantic a surplus of \$95,505, against a deficit of \$866,542. Large comparative gain is shown by the South-western group, the figures showing \$1,021,167 deficit, against \$10,478,276 in 1888. The net earnings from traffic operations show an increase of over \$20,000,000 and this sum with an increase of \$4,000,000 in the miscellaneous receipts from investments, etc., of the companies was sufficient to warrant a slightly increased return upon the capital invested. Compared with 1888, gross earnings increased \$43,480,326, to which increase the elevated railroads contribute \$1,245,478, the remainder, \$42,234,848, being the increase upon the surface roads, made up by increases of \$8,283,640 passenger earnings, \$27,329,830 in freight earnings, \$6,620,378 in mail, express and other miscellaneous earnings. The most marked increases in earnings were in the States west of the Mississippi and east of the Rocky Mountains. In the Middle States the losses in gross earnings suffered by the coal carrying roads kept the increase for

the section down to a narrow margin of \$4,500,000, while the whole South fails to show any gain of consequence. The total number of miles of railroad in the United States at the close of 1889 was 161,397, of which 6,751 miles were constructed during the year. The share capital corresponding to the mileage completed at the end of 1889 equaled \$4,495,099,318, against \$4,438,411,342 in 1888, the increase equalling \$56,687,976 the rate of increase being 1.26 per cent. The funded debts of all the lines at the close of the year aggregated \$4,828,365,711 a sum \$204,330,748 in excess of the total of 1888 (\$4,624,035,023), an increase of 4.4 per cent. The cost per mile of all roads making return, as measured by the amount of their stock and indebtedness, equaled \$60,309, against \$60,732 for 1888.

NEWS.—At Mullgrove, Catawba County, N. C., July 15, the valuable flouring mills of Captain P. M. Mull were destroyed by fire. On the same night his barn and stables, a half mile from the mills were burned. The loss on the mills and barns will amount to nearly \$5,000, on which there was no insurance. The fire was undoubtedly of incendiary origin, as there had been no fire about either mill or barn, and as the buildings were too far apart for the fire to have been communicated from one to the other.

McCORKLE BROS., Loyd, Wis., have sold their mill.

J. R. BLEVINS' mill burned July 21, at Manchester, Ill.

C. J. BERRY is building an 85-barrel mill at Norwood, Minn.

THE Farmers' Union will build an \$85,000 mill at Concordia, Mo.

JOHN SLOOP is building a 75-barrel roller mill at Queen City, Mo.

SOHLER & Co., of Fertile, Minn., are succeeded by L. P. Kankel.

ISEMAN & SECHLER are building a 60-barrel mill at Harmony, Pa.

SWEAT & SON are building a 50-barrel mill at Ainsworth, Nebr.

POST & LYNCH, of Clarksburg, W. Va., are building a 50-barrel mill.

A. T. DAVIS & Co., of Madrid, Ia., are building a 50-barrel roller mill.

THE Huegely Milling Co., have succeeded John Huegely, miller, at Nashville, Ill.

WM. ZOLLMAN has let the contract for building a 35-barrel mill at Lexington, Va.

N. HUNSAKER has completed and started up his 30-barrel mill at McClellandtown, Pa.

THE Biscay Mill Co., of Biscay, Minn., have let the contract for a 100-barrel roller mill.

BENNETT & CASTLEMAN are building a 70-barrel roller mill at Wilford, Wilson Co., Tenn.

A. R. BRADLEY & Co., St. Libory, Neb., have sold out their mill and elevator in that place.

H. C. WAITE, of Cold Spring, Minn., is enlarging his mill to a daily capacity of 225 barrels.

JAMES McMILLAN, of the firm of Baker & McMILLAN, millers at Redwood Falls, Minn., is dead.

ARTICLES of incorporation have been filed at Jefferson, Ore., by the Jefferson Flouring Mill Co.

BEDLION & Co., millers at Elm Grove, Mo., are building an elevator of 30,000 bushel capacity.

THE Tennessee Milling Co., of Columbia, Tenn., has changed its name to the Bucks Milling Co.

HATTON & SLOANE, of Olean, N. Y., have sold out their milling business to the Acme Milling Co.

JULY 12, Stroch & Marx's mill near Papillon, Nebr., was burned. Loss, \$9,000; insurance, \$4,500.

THE Arcadia Milling Co. with a capital stock of \$10,000 has been incorporated at Arcadia, Wis.

GARDEN, Delta Co., Mich., offers a bonus of \$1,000 to any one who will build a roller flour mill there.

THE firm of Woodward & Graybill, millers at Carlisle, Pa., has dissolved. John D. Graybill succeeds.

WREST & OHM succeed Sohler & Co. as proprietors of the Caledonia River Mills at Caledonia, N. Dak.

JULY 21, the mill and warehouse, owned by J. R. Blevins at Manchester, Ill., were burned. Not insured.

SCHIERICH, SCHULER & Co., millers at Jasper, Ind., have assigned. Liabilities, \$15,000; assets, \$10,000.

THE Thompson Milling Co. expect to have their new mill at Lockport, N. Y., ready for business October 1st, 1890.

AT Troy, N. Y., Aug. 14, fire broke out at Oliver Boutwell & Son's flouring mills. The property was totally destroyed.

E. GROSVENOR & Co., owners of the City Mills at Janesville, Mich., are building an elevator of 35,000 bushel capacity.

THE mill at Sterling, Nebr., now owned by The Sterling Mill Co., is being remodeled and fitted out with new machinery.

FRED. C. HENRY's flour mill, at St. Louis, Mich., was burned on the morning of August 5. Loss, \$20,000; insurance, \$13,500.

AT Gilliam, Mo., July 16, a large elevator containing about 10,000 bushels of wheat was burned. Loss, \$20,000; no insurance.

ARTICLES of incorporation have been filed by the Wauwatosa Milling & Mfg. Co., of Wauwatosa, Wis. Capital stock, \$3,500.

BOARDMAN & FERGUSON, millers at Honoye Falls, N. Y., have dissolved partnership. H. E. Boardman continues the business.

REBOK & BEAR have moved their flour mill from Lovington, Ill., to Bloomfield, Mo., and have increased the capacity to 100 barrels.

MRS. JOSEPHINE A. RICHARDS, of Atlanta, Ga., has purchased, of the receiver, the Kenesaw Flour Mills at Marietta, Ga., for \$28,000.

THE Virginia Milling Co. has been incorporated at Virginia, Ill., with a capital stock of \$12,000. They will do a general milling business.

As an inducement to build a flour mill, Ritzville, Wash., offers a bonus of \$1,000 cash, land for a site and several thousand bushels of wheat.

MESSRS. CONANT & SONS, Terre Haute, Ind., have quite the milling business, and are now engaged in a mineral water enterprise in that place.

THE Silver Springs Milling Co. with a capital stock of \$12,000 has been incorporated at Silver Springs, Ark. Daniel Portnell, Pres., J. W. Scroggs, Sec'y.

AT Hudson, Wis., Aug. 16, fire in Libby's flouring mill totally destroyed that plant. The loss is \$6,000 with an insurance of \$2,500. The origin is not known.

AT Decatur, Texas, July 10, the city elevator was destroyed by fire. Loss, \$10,000; insurance, \$5,000. The fire is thought to have been of incendiary origin.

THE large barrel hoop manufactory of the Anchor Manufacturing Co., at Del Ray, eight miles from Detroit, Mich., burned July 29. Loss, \$35,000; insurance, 30,000.

AT Kensington, Ill., Aug. 10, Pullman oatmeal mill and elevator were burned. Loss, \$45,000. W. M. Druly, of Chicago, was owner. He is insured for \$31,000.

CYRUS WOODRING, of Cambridge, Nebr., has bought the mill at Orleans, Nebr., of Carl Boehl & Son and will immediately commence remodeling to the roller system.

JOHN SCHREINER, formerly miller at Brillian, Calumet Co., Wis., has gone out of the business, and is now landlord of the Commercial House, at Forest Junction, Wis.

THE 60-barrel mill of Burklin & Boyd at Vandalia, Mo., was burned July 1. Loss on mill and stock, \$15,000; insurance on mill, \$6,000; on stock, \$8,000. They will rebuild at once.

ON the list of recent purchasers of Menasha Wood Split Pulleys we find The Cockle Separator Co. of Milwaukee; Barker & McMILLAN, Redwood Falls, Minn.; and H. K. Woods & Co., Piqua, O.

C. O. GRAVES, R. C. Massie, Jas. A. Scott, J. T. Weathers, W. A. Ryce and F. E. Kellogg have incorporated the C. O. Graves Milling Co. at Rich Hill, Mo., with a capital stock of \$30,000.

SPONTANEOUS combustion of malt dust caused a fire in the Henry Muller Brewing Company's brewery in Philadelphia, July 11, doing \$100,000 damage. Two firemen were seriously hurt by a falling wall.

THE South Bend Enterprise, of South Bend, Pacific Co., Wash., and the Portland, Ore. Journal of Commerce, have consolidated and will hereafter appear as the South Bend Journal, published at South Bend, Wash.

AUGUST 18.—J. W. Smith's grist mill at Bloomer, Wis., was burned. The origin of the fire is not known. When first noticed it was a fire in the center of the building. The mill is valued at \$8,000. Insurance not known.

THE Buchanan Milling & Power Co., a late organization at Buchanan, Va., have purchased the flouring mill of M. B. Rogers, and will enlarge and remodel it to the roller system with a capacity of 50 barrels per day.

EIGHT miles west of Paris, Mo., July 19, the Holiday roller mills owned by J. B. Blades, were destroyed by fire. The cause of the fire is unknown. The loss is estimated at between \$7,000 and \$10,000; insurance, \$5,000.

THE Elmo Roller Mill Co. has been incorporated at Elmo, Mo. Capital stock, \$10,000. The officers are J. H. Caldwell, Pres.; J. M. Welsh, Sec.; J. M. Lamar, Treas.; J. Frank Null, business manager, and Jep. L. Farley, head miller.

AT Fort Branch, Ind., August 7, the cooper shop and large flouring mill building belonging to Mackey, Nisbet & Co., of Evansville, Ind., was burned. Loss, \$9,000. No insurance. The fire is supposed to have been incendiary.

O. S. MILLER & Co. are building a new mill at Champlin, Minn. The building will be three stories high, will have all modern improvements in milling machinery and have a daily capacity of 100 barrels. The estimated cost is \$15,000.

AT Collingwood, Ont., Aug. 10, C. Macdonald & Son's flour and corn meal mill was burned. Loss, \$35,000. Insured for \$17,000 in North British & Mercantile, Hartford; Royal Canadian and Norwich Union. The stock was insured in Western for \$5,000.

THE Nashville Mill Co., Nashville, Tenn., has sold out to the Union Mill Co. W. C. Meyers, formerly secretary and treasurer of the Nashville Mill Co., is now in the commission business at No. 120 S. Market street, Nashville, dealing in hay, grain, meal, flour and feed.

AT Kalamazoo, Mich., Aug. 13, fire destroyed J. L. Sebring's grain elevator. Twenty thousand bushels wheat belonging to various farmers was destroyed. The wheat was valued at \$17,000, with little or no insurance. The Sebring loss is about \$10,000, with \$8,000 insurance.

THE 1500 barrel flour mill, owned by Messrs. A. A. Freeman & Co., La Crosse, Wis., was destroyed by fire, Aug. 2. Cause supposed to be spontaneous combustion. Loss about \$300,000; insurance, \$160,000. As this company has established a very large business, it is more than probable that the mill will be rebuilt.

AT Norwich, Conn., Aug. 15, fire broke out in A. A. Beckwith's flour and feed mill and store on Water street. The fire caught from a spark from chimney. Mr. Beckwith had just put in 30,000 bushels of corn and oats, and more than 30 tons of hay. Loss \$35,000; insured for \$11,000.

THE Norfolk Milling Co. has been organized at Norfolk, Va., with a capital stock of \$60,000. The officers are J. D. Thomas, Pres., C. B. Price, Sec., and S. M. Elliott, manager. The contract has been let for building and machinery with a daily capacity of 200 barrels.

AT Minneapolis, Minn., Aug. 16, Crystal Flour Mill at Forty-third avenue north and Lyndale st., was burned. It was owned by Henry Oswald. John C. Oswald is also interested in the property. Loss, \$40,000; insured for about half. The owners have decided to build a new three-story structure, more substantial than the other, and increasing the capacity from 200 to 250 barrels per day.

JULY 23, the boiler in Mead Bros. flour mill at North Jackson, O., exploded. Wm. Thomas, engineer, and Geo. Mead, one of the proprietors, who were in the engine room at the time of the explosion were instantly killed and Geo. Mikezell, a farmer, was fatally injured. A few seconds after the boiler exploded a second explosion occurred, caused by mill dust catching fire, and the mill was completely wrecked. Loss, \$25,000.

AT Crawfordsville, Ind., July 18, the new elevator of Messrs. Crabb & Reynolds was discovered to be on fire at 2.30 A. M., and was burnt to the ground. It contained from 5,000 to 7,000 bushels of new wheat. The building cost \$8,000; insurance, \$6,000 on it and machinery in non-board companies, and \$3,000 on the wheat. It is supposed to have caught from a hot box in the elevator. This is the second time the firm has lost by fire within the last eighteen months.

INDIAN CORN IN EUROPE.—Italy has a soil peculiarly fitted for the growth of Indian corn. The average yield is 17 to 18 bushels to the acre. France and Austria have each about one million acres, the first yielding an average of 20 to 24, and the latter 15 to 20 bushels per acre. The round, small, compact maize of Hungary's 4,500,000 acres is much esteemed in England.

We shall be pleased to receive from any of our readers, short, crisp, sensible letters on subjects of interest to the flour and grain trade for publication.

OLD FLOURS.

By M. V. PLANCHON, Paris, France.

IN the course of his remarkable labors on flour and panification, M. Balland has effected numerous determinations of acidity in the products of the grinding of corn. According to this author the normal acidity of flour represented by monohydrated sulphuric acid, seems to fluctuate between 0.015 gr. and 0.040 gr. per cent.

One can understand how many difficulties the exact estimate of such small amounts of acid must offer, especially when the fact is recalled to mind that the analysis has to be performed in an alcoholic liquor resulting from the prolonged maceration of only a few grammes of flour employing as detector litmus paper. I hasten to add that in following exactly the operative method described above, I always obtained for good flour figures comprised within the limits indicated. However, I believe that I have acquired the certainty that these figures although comparable amongst themselves do not represent the real acidity. Effectively very different results are obtained by operating in the following manner:

Five grammes of flour are gradually diluted in about fifty per cent. of cold water; when the mixture has become quite homogeneous, which requires some minutes, two or three drops of pthaleine are added in alcoholic solution, then is poured in, by means of a burette, graduated in tenths, the alkaline liquor, shaking unceasingly. The neutralization point can be easily appreciated by comparing the tint of the mixture with that of a standard liquor prepared with water and flour in the same proportions; as soon as a clear chamois coloration has been obtained, the effusion of the titrated liquor is stopped, noting the number of cubic centimetres employed. This number of cubic centimetres is multiplied by the coefficient 0.0245; the figure thus obtained seems to me to express exactly (in monohydrated sulphuric acid) the real acidity of the flour at the instant of analysis. One cannot admit, effectively, that during the very short duration of the operation, the action of the water and ferments has provoked the formation of a notable quantity of acid. I have moreover, established, that when mixtures of flour and water are left to themselves, the total acidity does not increase sensibly during the first hours.

Here is, as example, the result of the analysis of similar flour maintained in contact with the water during variable periods of time and with frequent shakings:

	Total Acidity (in 100 gr.) for 1% of flour.
Immediately	0.110
After 1 hour of contact.....	1.110
2 "	0.110
4 "	0.113
7 "	0.115
24 "	0.126
48 "	0.145 (manifest alteration)

If the total acidity remains the same during the first hours, it is quite different with the quantity of acid entering in solution. By measuring the acidity of the liquor separated by filtration of the preceding mixtures, the following results are obtained:

	Soluble Acids (in 100 gr.) for 1% of flour.
Immediately	0.0107
After 1 hour of contact.....	0.0225
2 "	0.0230
4 "	0.0250
7 "	0.0275
24 "	0.0425
48 "	0.0830

On the other hand, the maceration in alcohol at 80° during twenty-four hours revealed in this flour the presence of 0.030 gr. of soluble acids in the dissolvent.

It is evident, then, that the flour does not immediately yield either to cold water or alcohol the totality of the acids contained, and that the employment of an alkaline liquor acting on the flours themselves is essential for the valuation of the whole of these acids.

This method has been hitherto applied to the examination of eleven samples of

new flours selected from the district of Boulogne-Sur-Mer, France. Nine roller flours revealed a total acidity varying between 0.105 gr. and 0.122 gr. of sulphuric monohydrated acid per 100. Two millstone flours, called country flours, contained respectively 0.119 gr. and 0.133 gr. of acids.

I also had occasion to analyze two specimens of clearly damaged flours, unsuitable for the work of baking, and of which the total acidity amounted for one to 0.160 gr. of 80°, for the other to 0.565 gr. In these two cases the valuation of the total acidity has given very characteristic results. Also, I am of opinion that this operation, which can be performed in a few minutes by following the preceding indications, should not be neglected in the chemical analysis of baking flours.—*British Confectioner, London.*

A CENTURY OF INVENTION.

AN interesting centennial was overlooked a few weeks ago. The first 100 years of American patents was completed in April. Patent No. 1 was issued April 10, 1790. The century closed with No. 425,395.

In the first half of the 100 years the patent laws were not so encouraging. In fifty years only 12,421 patents were issued. But we are now making up lost time. There were issued last year 22,080 patents. The United States Patent Office paid expenses from the fees taken in, and laid up a balance of a clean \$250,000 in the year 1880.

Instead of American ingenuity exhausting itself, the exercise of it seems to make it more prolific. Every year shows a larger number of inventions than the year which preceded it. Here are a few of the novelties which have been patented since 1890 began:

The approach of fly-time has suggested an idea for a cow-tail holder. A clamp like a clothespin catches the bushy end of the tail, and two cords with a snap attachment fasten the tail to the cow's leg, to a post or to the milking-stool.

The same day that the Nebraska man got his patent for a cow-tail holder a man in Maine got one also for the same end. The Maine man's tail-holder is made of a single piece of wire coiled so as to connect the tail with the cow's leg.

"A candle for killing insects" is a mixture of insect powder and tallow, or something else that will burn, molded round a wick.

The estimable wife of President Andrew Jackson once accounted to the British minister for an awful cold in the head by telling him that "the ginerel had kicked the kivvers off" the night before. There is no longer any excuse for people who "kick the kivvers off." A clamp and a spring are now patented for attachment to the bedstead. By this simple device the covers are fastened down. The spring gives sufficient play so that there is no danger of one getting choked in the act of turning over.

Any one might guess that a Kentucky man is entitled to the credit which attaches to the invention of a "combined inkstand, pistol case and burglar alarm." No Kentucky editor's desk should be without it. The application may be illustrated: An editor sits at his desk writing. One of the Hatfields or one of the McCoy's enters to ask a correction of the report about that row over on Hell-for-Sartin creek. The editor reaches forward as if to dip his pen in the ink. He touches a spring in the top of the inkstand. A shallow drawer flies open toward him and his hand drops upon the revolver. At the same time the alarm goes off like one of those new devices to call people at 5 A. M. in country hotels. The mountaineer jumps back as if he heard the b-r-r-r of a rattler, and before he recovers he is covered. The editor

is master of the situation. This inventor lives in Louisville.

A handcar which moves along the tracks and mows weeds fifteen feet away is one of the innovations in railroad machinery. It will do to go very well with the rotary snow plow as an illustration of automatic intelligence.

Dress reform is sweeping away the barriers of sex. The Patent Office has been called upon this month to protect the idea of a bifurcated skirt and has done it.

There is a genius in Cohasset, Mass., who spends his time getting up startling effects for the stage. He has recently taken out two patents. One of them is for an arrangement of slides and springs by which a man, or rather a dummy, goes all to pieces. At a signal the head flies toward the ceiling, the legs move to the sides, and the arms drop to the floor. The body remains in the chair.

A beheading apparatus is another of this inventor's ghastly devices. The axe drops into a socket in the block and the head drops.

The arrangement of mirrors at the proper angles in a tub so as to enable a person to see what is going on in a room at some distance has been patented within a month. The mirrors may even be moved so as to bring into view various portions of the room. There is a suggestiveness about this device which is paralyzing. The probabilities of its improper use strike the imagination much quicker than the possibilities of proper employment.

The uses of electricity extend. An electric flatiron is one of the new things under the sun. The iron is hollow and the wire passes into the center and is so arranged that when the electricity is turned on the flat face of the iron is kept at an even degree of heat—just sufficient to do good work.

From the edge of prohibition, Kansas, comes a curiously contrived stopper, which, placed upon the neck of a bottle, registers every drink taken out of it.

There are people who still believe in the practicability of cow milkers. One of them has just got a patent for a four-tube arrangement by which he expects to draw off the contents of the udder without being kicked over for his smart-

The idea of combining various uses in a single article is a favorite one with inventors. "The combined cap, pillow and life preserver" is to be made of some air-tight material. As a cap it looks like the double-visored headgear which is considered the thing for steamer wear. The centre pulls out. What appears to be a ventilator in the top proves to be a mouth-piece. You blow into it until the interior is about half filled with air, and you have a very fair imitation of the air pillow. If you awake at night and find that the boat is sinking, you blow some more air in through the mouth-piece and have a life preserver as big as a good-sized bladder. There is even a piece of tape attached for tying the preserver to the breast.

One of the first contributions from the new state of South Dakota is a machine for burning prairie grass. The driver mounts his seat in front, turns on the gasoline, strikes a match, and moves across the prairie, leaving a broad black line. The grass over which the big sheet-iron box is drawn is entirely consumed, but no fire escapes outside of the box.

The magnificent and wonderful frosting with which the caterer's art covers the wedding cake is now removable before the cake is cut, so that it may be used again and again.

A new garden implement is made by twisting a single piece of wire rod, but the person who tries to make one for himself will find that he is infringing a patent.

The improvement of coffins has long been a favorite field for ingenuity. The

latest idea is to have the name plate in the form of a scroll. At the top the scroll turns into a hollow cylinder with a cap which can be unscrewed. This cylinder is intended for the preservation of any record which may be enclosed in it at the time of burial.

With a view of robbing the grave of its terrors, somebody has patented a lining to conceal the mother earth. This lining consists of evergreen attached to cloth or matting. After the coffin is lowered the decoration can be pulled out and used again until the evergreen wears out or turns brown. The inventor proposes to bring the scenic effects within the reach of poorer people by having an imitation of evergreen painted on canvas for cheaper use.

Another of these funeral-minded inventors has patented what he calls a "cab for pall-bearers." The vehicle has side doors and will hold eight persons, two of whom, however, must ride backward. The design seems to be to save the expense of an extra carriage, at the same time encouraging sociability on the part of those performing the last sad office.

And, as if this was not enough, a fourth inventor has obtained letters on what he calls "a funeral carriage." He carries the coffin and the bearers, and if there are not too many mourners, he accommodates the whole procession with one vehicle. The funeral carriage is built like an omnibus, with a compartment on top for the coffin. The inventor provides skids, an endless chain, and a pulley for running the coffin up into the place intended for it over the heads of the bearers.

Who ever heard of a man lifting himself by his boot straps? Only small children believe in the performance of "The Seven League Boots." Well, the Patent Office has just granted papers to a Russian upon a device which is a combination of the hitherto deemed impossible boot-strap act, with a little of the seven-league business added. The Russian lives in St. Petersburg. He calls his invention an "apparatus for walking, running or jumping." The apparatus consists of bows and springs fastened to the feet, the legs, the wrist and shoulders. As the knees are bent either to walk or run or jump, the tension of the bows and strings is increased, and the man shoots upward and forward. At least that is what the drawings and specifications of the inventor say will happen. The Russian did not send over any actual samples of his contrivance, and the Patent Office people have to act upon theory only.—*Globe-Democrat.*

AN ELECTRICAL CORN MILL.—A corn mill at Belfast, Me., has been put in operation where the motive power is entirely by electricity, three alternating current dynamos being used. The capacity of the mill is 400 bushels of corn per day, and the mill is equipped with one run of buhrs and one set of rolls, with proper cleaning and separating machinery. The use of electricity, at least for small mills, is a great economy in gearing, shafting, pulleys and belts, as a single generating machine will supply the power by wire to the floor or machine wanted, to which the motors may be attached either to all the machines on a floor or to any particular machine. This economy is especially applicable where water is the initial motive power, but the saving on transmission machinery would be great in any case. Electricity cannot yet be produced as cheaply as steam power, but it can be more cheaply and easily distributed. The mill will be lighted from the same generator that supplies the motive power.

ALL persons desiring to reach the entire milling and grain trade of America, by circular or otherwise, should obtain a copy of CAWKEE'S AMERICAN FLOUR MILL AND GRAIN ELEVATOR DIRECTORY FOR 1890-91.

[From our Regular Correspondent]
OUR BALTIMORE LETTER.

Storage Matters—"Oriole" Takes the Baltimore Railroads to Task—Frequent Criticisms of Their Action—A Word About "Jay" Dealers—The Baltimore Flour Market—Present Condition and Future Prospects, etc., etc.

No more free storage on flour at Baltimore!

The edict has gone forth and there is no appeal from it!

All railroads leading into the city have given notice that on and after September 1st, 1890, all flour received here must be removed from depots four days after arrival or be stored at the risk and expense of owner. While this suits millers' agents, exactly, in that it will have a tendency to curtail consignments and otherwise relieve the market of an unnecessary, burdensome and ever depressing incubus in the shape of surplus and accumulation, and thus enable us to sell more liberally and advantageously of stock to arrive, it is, nevertheless, from a broader standpoint, a step backward, a very bad precedent and one indeed which smacks too much of old fogeyism to merit the approval of anybody in this rapid and progressive age. It has been the custom of trunk lines leading into Baltimore, to furnish free storage on flour to patrons and with that in view, ample and commodious accommodations were provided some years ago at Spears' wharf and Patterson street, by the B. & O. and Pennsylvania roads respectively.

The scheme has worked like a charm; put us on an equal footing with New York and other markets enjoying the same privilege and increased the business of the port amazingly. Now, in the light of all this, comes the announcement that we are to be deprived of the one thing which above all others has been our trump card in playing for trade. Without free storage we can no longer compete with rivals except at a disadvantage to the consumer and it is not likely that mills will consign here on that basis and take chances of doing as well as formerly. We are free to admit that the roads have been imposed upon and that the privileges accorded have been grossly abused, but where is the sense or justice in going to the other extreme, imperiling a great industry, and making the innocent suffer for the guilty?

Is there no medium between indefinite free storage and that which will jeopardize the whole trade?

It is a vital matter to those concerned, and all important that some compromise should be effected speedily to save this valuable adjunct, but in going about it we do not favor the cringing, fawning, begging, mealy-mouthed attitude as exhibited by some, but on the contrary, a vigorous, aggressive, demanding-your-rights combat, and, if need be, one too, with sleeves rolled up, meaning fight, should the roads manifest no disposition to act squarely and meet us half way.

In these days of sharp competition it becomes imperative to lop off every unnecessary expense in the way of trade, and we claim that the one in contemplation is eminently of that character, and should be summarily dealt with accordingly.

It is the tendency and object of the manufacturer and producer to get as near the consumer as possible, and that being the case it is only a question of time when the middle man and all other barriers between will have to take a back seat and in the end be dispensed with entirely.

The hand-writing is on the wall, and everything seems to be gravitating in that direction, and while we are loath to admit it, we nevertheless, see no use in disguising or ignoring the fact any longer, and our only salvation apparently is to stave off the inevitable if possible by reducing charges to the minimum and offering every advantage and inducement in the way of terminal facilities.

To this end the live members of the trade are prepared to make the necessary sacrifices, but here is just where the railroads come in, and, instead of doing the same, invariably do the reverse, and reap the benefits intended for others.

It is utterly futile, then, for us to offer to handle stuff any cheaper, if the roads are going to handicap us at every stage, and trump up excuses to absorb what we concede.

In that way you see railroads are the exclusive gainers, to the detriment of everybody else.

Under the present system the railroads and the trade both have prospered wonderfully, and why the former should change their policy now is a mystery past finding out.

We must confess that we fail absolutely to recognize anything in this free storage business other than what the trade is entitled to, although many in our midst think differently and consider it the very acme of everything that is liberal, generous, noble and enterprising on the part of the roads, nor do we appreciate it sufficiently to get down on our knees for the sake of retaining it and pray for its continuance, for, while it is no doubt an advantage to any market we claim also that it is equally as beneficial to the roads themselves, notwithstanding they would have us labor under a very different impression.

We should not lose sight of one fact and that is that no railroad on the face of the earth ever does anything except from a purely business, therefore selfish motive.

Where gratuitous storage is allowed it is done solely to secure the increased revenue which naturally and inevitably follows such a course in the shape of a heavier movement of freight, and with no thought or intention at all of bettering the condition of the market, patrons or the public at large.

Not content with the lion's share of the profits already, and notwithstanding they have every facility to continue the privilege in question, these roads now propose to levy an additional tax on flour and run the risk of driving this important industry from our doors.

In other words they want the earth and the fulness thereof, and if they can't get a little more besides the freight in this case they intend to break up the business and

divert the stuff to other markets. That is about the size of it and what it all amounts to and is but another illustration of what it means to kill the goose that lays the golden egg.

It is pertinent to the question to inquire right here what is to be done with the through shipments which accumulate in vast quantities at Locust Point and Canton and which are stored free of expense now for an almost indefinite period. Are they to be removed in four days after arrival or be stored at the risk and expense of owner? If not, then the roads are discriminating against us, and giving the foreigner advantages which we as Americans, are denied. The trade here has rights which these corporations should be made to respect and one of them is the same privilege vouchsafed to foreigners and competing markets of our own country. Railroads in general are undeniably the most grasping institutions of the nineteenth century and also too often the worst tyrants and oppressors that the human race ever came in contact with or that the sun ever shone upon and we heartily unite with the Nationalists in wishing for the coming of the day when these monopolists and grinders shall pass under the control of the Government and be operated by it in their proper spheres as the servants and conveniences of the people and not as their masters. These lords of creation have the whip handle just now, but another day is coming when all will be changed, and it is not far distant either.

But to give the devil his due, we are of the opinion that this sudden determination of the Baltimore roads was not altogether voluntary on their part but came as we imagine at the suggestion and solicitation of some enemies in camp. Sometime ago this very subject was agitated by a few fossils and sore-heads of the trade who are peculiarly and otherwise closely identified with the roads in question, but who, after circulating their little petitions under cover for awhile, apparently abandoned their scheme when finding that the sentiment of those doing the business here was overwhelmingly opposed to the change, and that no signatures outside of their own small circle could be obtained favoring it.

The matter was then hushed up and everybody concluded that that was the end of it, and bothered no more about discussing it.

In the light of subsequent events, however, we suspect that these self same dog-in-the-manger relics, through pique, jealousy and revenge have clandestinely done the damage and are alone responsible for it, and instead of letting the matter drop as all supposed was the intention have quietly gone to work and used their influence with the powers that be and succeeded in foisting upon the trade a tax and a burden which is in every way contrary to its wishes and best interests. If such is the case then they should be openly censured by the whole trade and boycotted by every mill in the land. We shall consider it our duty also to give their names to the press should our suspicions be verified.

We have many warm personal friends among the commission merchants but we have no love for them as a class as they naturally have none for us as millers' agents. We have nothing with them in common—our interests clash and are diametrically opposed to each other, and each is trying in turn to down the other at every point, and when this movement was started last winter advocating the doing away with free storage it was a slap and a stab alike at millers' agents and the younger and more prosperous commission merchants of the city, who are doing the bulk of the business and allowing their mills the advantages named, but a shot never hit wider of the mark than in that case. Those having warehouses of course favor the abolition of free storage as they see in it a chance to get an extra slice out of consignments. At the instigation then of a few firms that do no business comparatively, the rest of the trade must needs suffer an irreparable loss.

Our readers have no conception of the amount of inconvenience and expense this proposed change means to those interested.

It is a great privilege not only to the mills of the country that consign largely, to have this free storage, but also to every buyer in the trade as well, and he who would rob them of it is unworthy the name of merchant and a good riddance were he to seek some other occupation forthwith.

These fellows who are so anxious for storage rates on flour are the ones generally who have nothing to do, but who spend their time strutting up and down the floor of the exchange like pouter pigeons, filled with wind and self-esteem, the laughing stock of the whole community.

We would want no more wealth than could be made at buying them at our valuation and selling them at theirs.

They are so light in fact that it is a wonder to us how they manage to keep from ascending and bumping against the dome of heaven for certainly it is not their brains that weighs them down or enables them to defy the laws of gravitation.

"Envy, hatred and malice and all uncharitableness" also beam from their countenances and, indeed, we know of no set on the face of the globe leading a more miserable existence than this same little coterie of cranks who want to run the town and who invariably turn green with envy whenever they see anybody else making money.

We are not far wrong we imagine in laying the blame where it belongs, as time will prove, but as we said in the offstart so we repeat that from a personal and selfish standpoint nothing could result more to our interest as millers' agents than this restoration of terminal charges on flour and instead of affecting us adversely in the least, as intended, it will on the contrary greatly benefit us, and, in the end, act as a boomerang to the very ones who meant us harm by taking from them what little commission business they have left.

It won't do for pigmies to buck against giants.

The Baltimore flour market has been on the rampage for another month and at this writing the indications are that it is going still higher.

City mills and jobbers have advanced prices since our last report 50 cents per barrel while the west and northwest through agents are asking just \$1.00 more than a month ago.

Of course this disparity between the two sections cannot exist forever, and as the outside quotations are still relatively too low for wheat it is apparent that the east has not done its duty and responded on flour in keeping with the raw material.

The advance in wheat has been about 30 cents per bushel from the lowest, while the west shows an improvement on flour at the rate of only 20 cents per bushel and the Baltimore market 10 cents per bushel.

We are looking for the trade here to mark up prices another quarter next week.

Great activity has been the rule here throughout the month, and while spot offerings are getting exceedingly scarce, oceans of stuff has been sold to arrive by agents which will prove sufficient for all immediate requirements of the larger dealers. The sales recorded daily represent stock taken to account by commission merchants mostly and business of a jacket-swapping character.

Agents are glad to report that they have at last disposed of all their accumulations on the spot and in consequences thereof are drawing a long, deep sigh of relief.

They earnestly pray that no more flour be consigned to them forever, as millers must see ere this the utter folly of doing it, and particularly as free storage is to end in this market with the current month.

Stocks of flour in Baltimore exclusive of that held by city mills is 45,000 bbls. Minneapolis patents are held strongly, to-day at \$5.75@5.90, about 75c. above previous figures. Other Spring patents range at \$5.50@5.75, but very little has been done in either of them since the last advance; \$5.85 could be gotten to-day for the best brand, but no more until prices improve further in this market. Standard Spring bakers' show, a gain of 60c. over the quotations of a month ago, making them range now at \$4.25@4.50.

Dealers are willing to anticipate wants at \$4.40 for the best qualities but in the absence of urgency refuse to pay full figures.

St. Louis patents and straights from last accounts were held at \$5.75 and \$5.25@5.35 respectively, but as wheat has further improved since they were given we imagine that they are still higher.

Ohio, Indiana and Illinois patents, straights and clears, the winters mostly traded in here, show again of nearly 75c per barrel over our last quotations but no demand is apparent since the late advance which makes them range respectively as follows: \$5.50@5.75; 5.00@5.25; and 4.85@4.90.

Jobbers here are getting no more for flour in a retail way than the figures some mills are asking. Unless our market responds to the advance more fully it is foolish to expect our dealers to pay the prices demanded. They are here to make money and certainly do not intend to pay as much as they can get for stuff.

Low grades continue in light supply and are in better request than the higher just now and at full rates.

The secret of it is that the southern trade has improved wonderfully of late and calls for an unprecedented amount of super, extra and standard family, making it hard indeed for jobbers to keep up assortments at figures which will show them a profit.

The change which advancing markets has brought about, the buyer seeking the seller is quite delightful.

We welcome it to get a rest and breathing spell, if for no other reason. This cut-throat competition too, will disappear like the morning dew.

City mills have been running at full capacity night and day and have sold the stuff faster than they can turn it out. In the light of this it seems strange that they do not advance prices further, but they are a conservative set you know and never want the whole loaf.

Their output for the month of July was 40,000 barrels, notwithstanding each mill was shut down alternately for a week.

The demand for Rio brands of extra has been something marvelous and unequalled in the annals of the trade.

Sales for the month aggregate about 50,000 barrels at figures ranging all the way from \$4.75 to \$5.25. Prices are quoted to-day at \$5.25 generally with one or two brands held at \$5.50.

Clearances for the month have been large but represent through shipments principally.

The wheat market here as in other places has simply gone crazy.

Nothing in fact seems able to stem the current of the bull fever which is sweeping over the land.

Values have mounted day by day until now the cereal shows a gain in this market of about 80c. per bushel over the figures of a month ago.

The export demand which started off so auspiciously just after harvest has petered out completely. Not a vestige of it remaining even, and no likelihood of its returning while present skyrocket prices rule the roost.

Considerable wheat has been shipped from here of late it is true, but it was all very old business and in instances showing great loss to the shipper. Particularly was this the case where cargoes were loaded into steamers which had been chartered long ago at high rates.

Notwithstanding ocean freights have gone to pot and can be had for the asking, and that our market is 7c. below New York, the highest bid from the outside to-day in the face of all this was just 4c. less than our current figures.

That gives an idea of how matters stand. In other words the foreigner don't want our wheat at present prices even if we deliver it to him free of charge.

If this advance keeps on, then we will bank up the stuff in this country and sell it out later on at lower figures. Cereal values are quite constipated at present but are likely to have an attack of the diarrhoea before many more months are over.

We all believe in a shortage and in a reasonable and justifiable advance in wheat but in no such wild-cat nonsensical farce as that which confronts us.

The farmer, however, should be happy as he is getting more for his stuff really than it is worth.

Speculation and manipulation have put prices where they are and after the shorts have covered and the country gotten long, then "Good by John" to ruling figures.

Receipts here are liberal both of western and southern and stocks show a steady increase.

Cash wheat hangs fire and goes begging while the far off options show strength at good carrying charge premiums, a very weak feature indeed.

No bull can pay such premiums and come out whole in the end. We hear that a Jewish syndicate with headquarters at St. Louis is engineering the present bull movement, and among the reasons flying through the air for the daily improvement are these: Cholera in Russia, potato famine, advance in silver, foreign shorts covering, small yield in spring wheat, crop damage lies by the bushel, and the Lord only knows what not. Everything is lovely now while it is going up, but there is a day coming for the bears to have their innings and who knows but what they may make just as much out of it as the bulls?

Stock of wheat in store here is 840,761 bus. Stock of corn, 66,574 bus.

CLOSING PRICES.			
Wheat.		Corn.	
Spot.....	\$1.00	Spot.....	.56
Sept.....	1.01	Sept.....	.56 1/2
Oct.....	1.03	Oct.....	.56 3/4
Dec.....	1.06 1/2		

ORIOLE.

Baltimore, Aug. 16, 1890.

The *Pittsburg Dispatch* tells of a ten-horse power engine, which on the upper story of a silverware manufactory, created such a commotion as to rattle the silverware on the shelves a hundred feet distant. A change of 25 revolutions in the speed, which change was in the direction of increasing the speed, entirely stopped the vibrations.

SECRETARY E. E. PERRY, of the Indiana Millers Mutual Fire Insurance Co., sends the following pointers to millers:

FIRST—The danger of COTTON ELEVATOR BELTS. As you know the elevator is liable to "choke up" at any time, and the belt resting heavily upon the pulley, which is making its usual revolutions, is sure to cause fire from friction unless detected in time. There is a simple contrivance whereby any such stoppage of an elevator belt can be detected without fail. Take a small piece of leather, place on a pivot in the front leg of elevator so that the buckets will strike it as they pass upward. A mere glance along the line of elevators will show any that may be stopped. These can be placed at a cost, we think, not to exceed 3 cents per elevator. The record of mill fires shows a large number having originated from COTTON BELTS.

SECOND—SPONTANEOUS COMBUSTION IN COAL PILES. The danger is in slack coal, so largely used by millers, and where this kind of coal is used, a brick fire proof coal house should be built or it should be removed far enough from mill that, should it burn, it could not fire the mill. This matter should have immediate attention.

THIRD—Now that hot weather is upon us, it behooves every miller to watch the fast-running journals more closely than ever, for hot weather will aid the danger from this source very materially. Our attention has been called to two mill fires recently caused by hot journals. Special care should be taken in this direction during the heated period, and we feel that a "word to the wise" is sufficient.

FOURTH—Since issuing our former circular we have received advices from a number of millers stating that they had saved their mills from destructive fires with barrels and buckets of water. It may be well to give here the following formula for these barrels: Make a brine same as you would to pickle pork, put in all the salt the water will dissolve and then put in six or eight pounds of common baking soda. Then keep barrels covered, that dust may not get in, and it will keep sweet and will not freeze. This preparation gives you about the same liquid used in Babcock's Fire Extinguisher.

FIFTH—Remember that dirt is one of the greatest hazards in a flour mill. Don't forget to keep bolts tightened in Wood-split Pulleys. Give close attention to your ELEVATORS and CONVEYORS.

MILWAUKEE ITEMS.

It is again rumored that a British syndicate is after the Phoenix and other flouring mills in this city.

The Filer & Stowell Manufacturing Co. will erect a new building 100x300 and three stories high. This addition to their plant is necessitated by their ever increasing business.

The Edw. P. Allis Co. are continually at work improving their buildings and adding more thereto. The business in the flour mill department is very brisk and promises to remain so for a long time to come.

The Wisconsin State Fair will be held in Milwaukee Sept. 15-20. No less than \$25,000 will be awarded in premiums. A great many attractions have been provided for so that all may be entertained. It is expected to be by far the best State Fair ever held in the Northwest.

A SITE for the new boiler manufacturing plant of the Davis Bros. & Bastian Co., was purchased Aug. 4, for \$12,200, 300 feet in depth, with a frontage of 150 feet on Barclay and 100 feet on Clinton streets. The company will also acquire possession of several other lots in the same block. The shops to be built there will cost \$300,000, and will furnish employment for 500 men.

THE BARLEY CROP.—The Asmuth Malt and Grain company have issued a report on the subject of the barley crop of 1890 in the Northwest, based on 856 letters from correspondents. The report is as follows: Briefly stated: the barley crop of 1890 shows not only a largely reduced acreage, but the yield per acre as well will fall short of that of 1889. The heaviest loss of acreage occurred in California, where large stretches of low lands had been rendered totally unfit for cultivation by the heavy inundations of last winter; on high ground, however, the yield there is excellent in every respect. Canada's extraordinary loss of acreage, variously reported as from 25 to 50 per cent., while also in part ascribable to a wet condition of the low lands, is mainly the direct result of the fear among growers, that the Congress of the United States would at an early day increase the present import duty on foreign barley to a point bordering on the utter exclusion of the Canadian cereal from the markets of our country. Except in California, Utah and Montana, and more especially in Oregon and Washington (which latter two states exhibit most magnificent results in every respect), the weight of the berry will this year be considerably less than it was last year, owing to the fact that a period of excessive heat settled over the chief barley-producing region of the United States at a most inopportune time, thus ripening the grain before the heads were well filled. The color of the berry, on the other hand, will be very much brighter than it was last year, and as this most desirable feature is accompanied by general excellence of the grain, the brewing and distilling industries of the United States may hope to be supplied, as in 1889, with an article of malt that will be sure to give satisfaction. It is expected that the year 1890 will be one of higher prices, say at least from 15 to 20 per cent. above those of last year, and yet we look forward to a season of even greater activity than that of the phenomenal year of 1889.

MENASHA HICKORY HANGERS.

We illustrate in this number the Menasha Hickory Hangers, manufactured by the Menasha Wood Split Pulley Co. at Menasha, Wis. This company have recently added these patent hangers to their line of manufacture.

The hangers have an upright post with side braces and cross-bar at top all bolted solid together. An iron box is so arranged to the lower end of the hanger-

ELEVATOR FOR SALE.

At Groton, South Dakota, in the hard wheat region, on the Hastings & Dakota Division of the C. M. & St. P. R'y, 20 miles east of Aberdeen. Steam power elevator, 20x30, and annex, 30x40, cribbed and bolted, with scales and all necessary appurtenances complete. Storage capacity 30,000 bushels. Purchases of wheat the past six years have averaged 80,000 bushels per annum. Will be sold for \$3,500 to close up an estate. Original cost \$5,960. Apply to

E. P. BACON, Executor,
MILWAUKEE, WIS.

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post, as to be movable sideways, so that their necessary adjustment is obtained. The boxes are made on the newest plan, long and strong, so that there can be no possible heating, and less oil used.

The strength of the hanger is proportioned to the load it has to carry, the same as an iron hanger. They are as strong if not stronger than an iron hanger, more graceful, and about one-fourth of the weight. They are hand-



somely finished in the natural wood. When shipped they are ready to bolt to the ceiling.

The special advantage of these hangers over iron hangers, is, first they cost about one-half the price of an iron hanger, they weigh less and the freight is less, and they are stronger and more handsome. They are adjustable in every direction.

The Company have already shipped them over a good portion of the United States.

The price list is one-half of the iron hanger list, and a discount is given from that.

ITEMS FROM BEYOND SEAS.

INDIA is building flour mills on the roller principle, and from the returns of the Bombay flour company a profitable business has been secured—paying a dividend of 15 per cent.

SHORT CROPS IN THE ARGENTINE REPUBLIC.—The Buenos Ayres Standard of July 4 says:

"Every day confirms the shortage in the maize crop, not only in the province of Buenos Ayres, but all over the Republic. What still further contributes to put up the price of maize is the failure of the crop in Uruguay, and large quantities have been shipped to Montevideo and other Uruguayan ports. The fears that the supplies for local consumption will run short, the many

shipments for foreign ports, and last, not least, the enormous rise in gold, have provoked a great rise in prices. The local demands both for home consumption and export, are large, but arrivals are small; the result is the high price of \$3.50 paid in the Once yesterday for consumption here. Consignees fear that prices will soon go to \$4; this is a serious matter, as the requirements for forage and distilleries in this market are simply enormous. These results show that agriculture this year will not be up to the great expectations formed at the beginning of the season; maize, let it be remembered, is always the largest crop here. The

new Centros Agrícolas, which gave rise to such speculation, have not grown maize; had they done so the benefit to-day would be enormous, and the profits colossal in a market that is rushing to four dollars per hundred kilos. With regard to the wheat market, the millers of the city, it is well known, sold enormous quantities of flour, reckoning on an unlimited supply of wheat. It turned out, however, that the wheat crop of Uruguay was a loss, and heavy shipments followed to that quarter and still continue; furthermore, large shipments were made for European account, just the reverse of what the millers expected; they reckoned on a fall in gold and an accumulation in wheat here. All these calculations have fallen through, and to-day we see wheat quoted at \$8½ to \$9, price paid yesterday in the Once for wheat of middling quality; on such a basis superior wheat must be worth \$10 per 100 kilos. The millers who sold short are now in a corner and are losing heavily. This dual rise in flour and wheat will produce in this capital a most unsatisfactory state of affairs, not to mention the danger of adulteration in bread, and, in sounding the voice of alarm, we call the especial attention of the municipality to this danger, at a moment when zymotic disease is carrying off from 35 to 40 people daily."

O. C. RITTER.

Sta. A, SPRINGFIELD, MO

Patentee and Designer

Ritter's One Reduction Milling System.

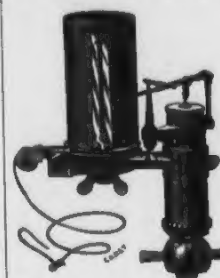
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A first-class water-power flour mill, 1½ miles from Cawker City, Kas. Good power; plenty wheat; good custom trade. Address,

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125-bbl. roller flour mill, 4 stories, frame with stone basement, including plenty water power for 4 water wheels. Flume, dam and mill in good condition. Frame warehouse and office close by, and long sheds for farmers' teams. The whole property in full operation 16 hours daily, doing profitable business. Has big grist business. City of 2,000 population; two railroads. Good trade with citizens, farmers and lumbermen, for flour, feed and rye. Good local grain, and plenty of it. Good place to live, has good schools and churches, and close to other large cities. Owner non-resident, which is reason for selling. Address,

MENASHA WOOD SPLIT PULLEY CO.,

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MILL FOR SALE.

4-story stone; full roller process; 100 barrel capacity per day; all new; steam power; good wheat crop. Mill at Walker, Kan., on K. P. R. R. Price \$8,000; ½ cash; balance 2 years at 8 per cent.

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FLOUR MILL FOR SALE—In Little Rock, Ark., with a capacity of 350 barrels every 24 hours; roller process; modern machinery. Has been in successful operation and paid handsomely. Will be sold at a bargain. Satisfactory reasons for selling. The machinery, building and site are all that could be desired. Full particulars by addressing THE ARKANSAS PRESS, Little Rock, Ark.

FOR SALE, EXCHANGE OR RENT—A good 50-barrel roller, water power mill, in thorough repair, in Eastern Dakota, one and one-half miles from station. Would take good rentable property in or near city in exchange. Address WM. CROZIER, Dry Bridge, Chesterfield Co., Va.

FOR RENT, SALE OR EXCHANGE—A new 50 to 75 bbl. steam roller mill, on Soo Railroad, 15 miles from Minneapolis, Minn. Wood only \$1.35 per cord; large crop; splendid farming country around mill; nearest mill, 15 miles; modern machinery. L. P. VAN NORMAN, owner, 615 Guaranty Loan Bldg., Minneapolis, Minn.

SIXTEEN TRANS-CONTINENTAL PASSENGER TRAINS DAILY.

Under the new train schedule which the Northern Pacific Railroad inaugurates, June 15th, 1900, there will be sixteen trans-continental passenger trains moving daily on this great line, eight east bound and eight west bound, exclusive of 108 local, main and branch line passenger trains running daily west of St. Paul, Ashland and Duluth in Wisconsin, Minnesota, North Dakota, Montana, Idaho, Oregon and Washington on its 3,800 miles of track.

Chas. S. Fee, General Passenger Agent of the line at St. Paul, announces that under the new arrangement the first through train, the Pacific Express, leaves St. Paul at 8:15 a. m. daily, with a through Pullman Palace Sleeping Car, leaving Chicago daily at 5:30 p. m., via the Chicago, Milwaukee and St. Paul Railway, running via Helena and Tacoma direct to Portland, and making close connections at St. Paul with all trains leaving St. Louis in the forenoon and Chicago in the afternoon of the previous day, arriving at Tacoma at 10:15 a. m. of the third day and Portland the same afternoon.

The second through train, No. 1, the Pacific Mail, leaving St. Paul at 4:15 p. m. daily, making close connections with the "Fast Mail," and all night trains out of Chicago, will carry a through Pullman Palace Sleeping Car and one or more Pullman Tourist Sleeping Cars, leaving Chicago at 10:45 p. m. daily via the Wisconsin Central line running through to Portland via Helena and Tacoma. Both trains out of St. Paul will carry Pullman Tourist Sleeping Cars and Dining Cars, but free colonist sleepers will be run only on train No. 1, leaving St. Paul at 4:15 p. m.

The Northern Pacific now operates the largest equipment of dining cars of any railroad in the world, twenty-four, and also the longest Pullman sleeping car line in existence, namely: Chicago to Portland via Tacoma, and is the only line running these sleepers to the principal trade centers and pleasure resorts in Northern Minnesota, North Dakota, Manitoba, Montana and Washington.

The recently completed Butte Air Line of the Northern Pacific makes this the shortest route between Chicago and Butte by 120 miles, and enables this company to announce a through Pullman Sleeping Car service between St. Paul and Tacoma and Portland via Butte, west on the 4:15 p. m. train, east from Portland on the 7:00 a. m. Atlantic Mail.

RECENT PATENTS.

The following is a list of patents relating to Milling and Grain-handling appliances granted during the month of July, especially reported for the U. S. MILLER, by Chas. E. Brock, Patent Attorney, Pacific Building, Washington, D. C.:

No. 431,055, Grain drier, H. A. Hogel, Syracuse, N. Y.
No. 431,140, Automatic grain-weigher, F. W. Day, Janesville, Wis.

No. 431,232, Conveyor, F. H. C. Mey, Buffalo, N. Y.
No. 431,209, Separator, E. Leslie, assignor to the Leslie Brothers Manufacturing Comp. Paterson, N. J., Orangeville, Ontario, Canada.

No. 431,185, Coffee-mill holder, D. W. Rowland, Centre-view, Mo.
No. 431,533, Automatic grain-weigher, C. R. Stanton, Stuart, Iowa.

No. 431,631, Hominy-mill, J. Warrington, Indianapolis, Ind., assignor of one-half to the Nordyke & Marmoon Company, same place. This device consists of the mechanism for operating the gates of a timing device embodying a disk carrying a reversing-pawl, a reciprocating ratchet-wheel for operating said pawl, divided into two parts, each part carrying a projection adapted to engage with a projection on said pawl, whereby said pawl may be reversed, and a screw-gear connecting said two parts, whereby their relative positions to each other may be varied and the distance between the two projections be thus also varied, and thus the period which shall elapse between the reversing the pawl may be accurately but variably predetermined.

No. 431,650, Helical loading apparatus, A. Dauber, Bochum, Germany.
No. 431,065, Machine for delinting cotton, C. K. Marshall, Vicksburg, Miss., assignor of one-half to W. L. Nugent, Jackson, Miss.
No. 431,703, Automatic grain-scales, O. M. Morse, Jackson, Mich.

No. 431,785, Grain-buller and scourer, J. Short, St. Louis, Mo.
No. 431,794, Discharge-gate for mixing machines, M. Broughton, Syracuse, N. Y.

No. 431,948, Grain measuring or weigh-apparatus, W. Looney, Oxford, Ind., assignor of one-half to J. Pickering, same place.

No. 431,951, Dust-arrester, J. B. Martin, Grand Rapids, Mich., assignor to Martin's Middlings Purifier Company, same place.

No. 432,117, Grain-separator, S. E. Chase, Wolcottville, Ind.
No. 432,145, Apparatus for cooling grain, A. McDougall, Duluth, Minn.

No. 432,200, Dust-arrester, E. W. Hoover, Chicago, Ill.
No. 432,347, Grain-measuring device, C. A. Weaver, Clayton, Ill.

No. 432,350, Dust-collector, A. N. Wolf, Allentown, Pa.
No. 432,370, Grain-separator, E. E. Chapman, Doyleston, Wis., assignor of one-half to F. Noller, Fountain Prairie, Wis. This separator consists of the grain-conveying trough, the straw-conveyer mounted upon the same; the shoe mounted below the discharge end of said grain-conveying trough and having the forwardly-extending chute, the crank shaft supporting the front ends of said chute and grain-conveying trough, and the springs connected pivotally with and supporting the rearwardly extending arms of the latter and the shoe, substantially as set forth.

No. 432,488, Middling-purifier, C. E. Henshaw, Medford, Wis.
No. 432,491, Dust-collector, O. Kutsche, Chicago, Ill., assignor by mesne assignments to the Allington & Curtis Manufacturing Co. of Michigan.

No. 432,519, Centrifugal reel, W. B. Dunlap, Cincinnati, Ohio.
No. 432,592, Device for dressing and cutting millstones, J. A. Reimsdorfer, Belle Grove, Pa.

No. 432,697, Loading elevator, T. McConnell, San Francisco, Cal.
No. 432,876, Middling-purifier, R. L. Hottel, Cedarville, Cal.

No. 433,034, Middlings purifier, D. G. Reitz, Berlin, Pa.
No. 433,044, Concave for threshing-machines, C. Schmalz and N. Watts, Uintah, Utah.

No. 433,090, Flour separator, P. Saraveat, San Antonio Tex.
No. 433,188, Scraping-reel and flour-bolt, P. B. Sprinkle, York, Pa. The patent covers the combination with reel-chambers and vertical flues, at both ends thereof, having a valve opening to form a communication between the flues and chambers of horizontal flues over the ceilings of the reel-chambers communicating with final-exit flues and having valve-controlled openings to effect a communication between them and the top of the reel-chambers.

No. 433,422, Grain-scale, N. G. Ross, Centre, Mo., assignor to the O'Connell Manufacturing Company, New London, Mo.

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Marquette, Oconto, Green Bay, Depere, Neenah, Menasha, Appleton, Wis.

THE TABLE OF EXPRESS TRAINS.

STATIONS.	DEPART.	ARRIVE.
Champion, Republic, Iron Mountain,	11:05 P. M.	3:30 A. M.
	7:20 A. M.	
	6:30 A. M.	6:55 P. M.
Menominee, Marquette, Oconto, Green Bay, Depere,	11:05 P. M.	3:30 A. M.
	7:20 A. M.	
	6:30 A. M.	6:55 P. M.
Appleton, Menasha, Neenah	11:05 P. M.	3:30 A. M.
	7:20 A. M.	
	6:30 A. M.	6:55 P. M.
	2:30 P. M.	11:20 A. M.

*Daily. †Monday only. ‡Except Saturday and Sunday. All other trains daily except Sunday.

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Chattanooga, Tenn.	17 "
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Birmingham, Ala.	16 "

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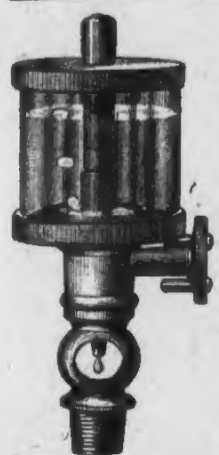
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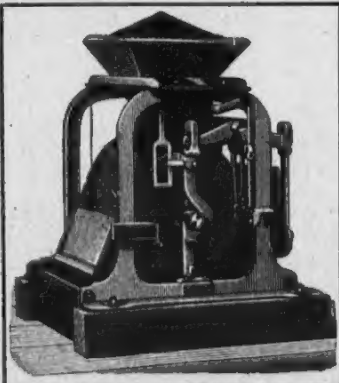


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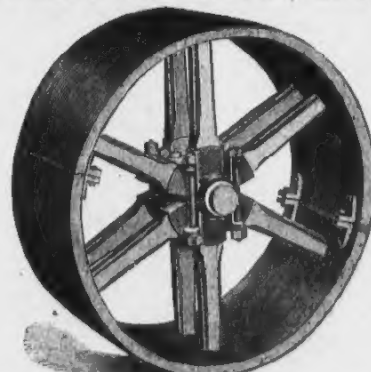
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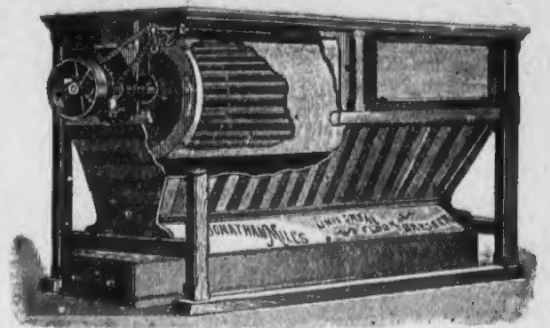
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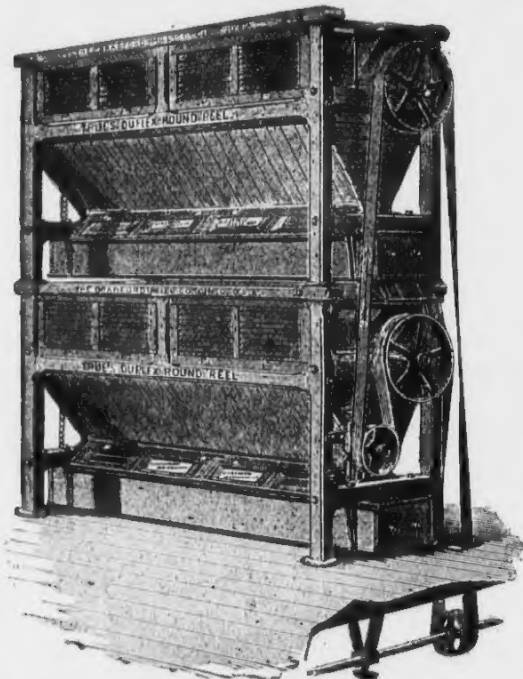
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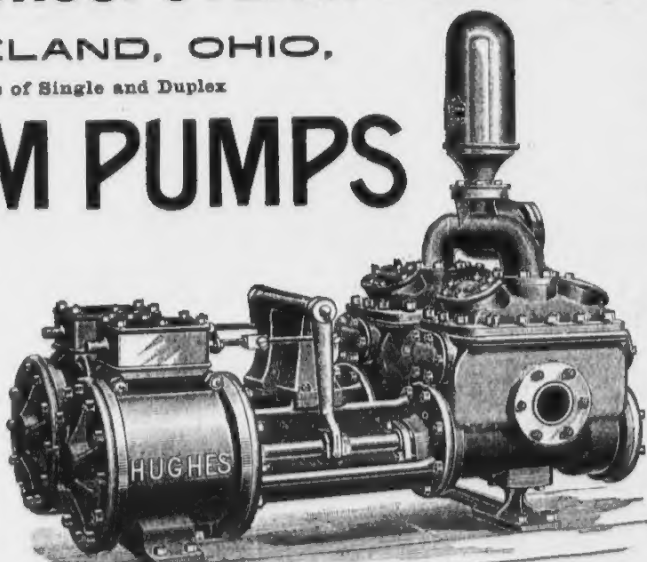
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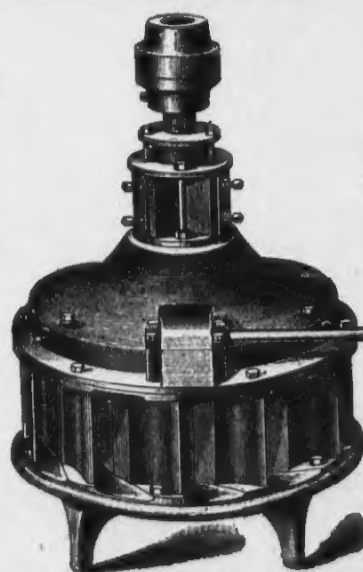
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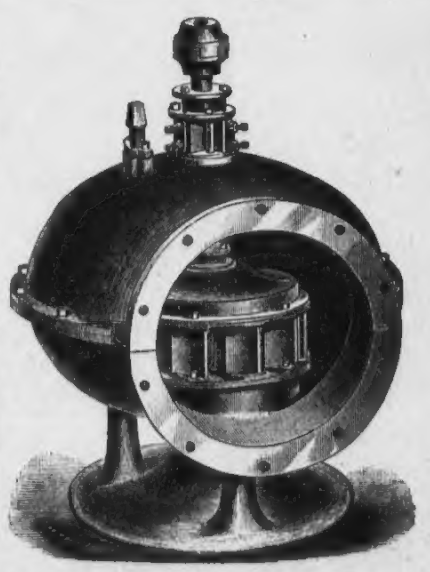
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